



# Administration of Thiamine in Chronic Alcohol Abuse Guideline

## 1. Introduction

Effective: 20 September 2019

Approximately 80% of people with chronic alcohol abuse will develop thiamine deficiency, which can lead to life-threatening consequences. Thiamine deficiency develops in this population as a result of inadequate nutritional intake, reduced intestinal absorption (by up to 70%) and impaired utilisation of thiamine (due to decreased production of thiamine-related enzymes). Alcohol itself can also reduce oral thiamine absorption by up to 50%.

An additional issue is that Wernicke’s encephalopathy (WE) and Korsakoff’s Psychosis (KP), which are the consequence of thiamine deficiency, can be difficult to diagnose due to overlap with the symptoms of alcohol intoxication. In fact, autopsy studies suggest that only 5-15% of WE cases are diagnosed ante-mortem. The mortality of untreated WE is estimated at 20%, with up to 85% of survivors going on to develop KP. This creates a significant health-care burden with approximately 25% of patients who are affected by KP requiring long-term institutionalization

Unfortunately there is limited evidence to guide our practice due the unethical nature of conducting trials involving a disease with high mortality that has an established therapy. However, recommendations have been published based on consensus expert-opinion and clinical inference.

An audit pertaining to thiamine administration in chronic alcohol abuse was conducted at the end of 2017 at the Albany Health Campus. The auditor reviewed patients with a drug and alcohol related presentation, who had attended the Emergency Department over an 18 month period. The results clearly demonstrated the significant variation in patient selection, dose, route and duration of thiamine administration between clinicians, thus prompting formation of this guideline.

## 2. Definitions

<b>Thiamine</b>	Same as Vitamin B <sub>1</sub> . An essential substance found in certain foods and needed for good health.
<b>Chronic Alcohol Abuse</b>	Regular consumption of alcohol above recommended levels +/- alcohol dependence.
<b>Wernicke's Encephalopathy</b>	A condition caused by thiamine deficiency, in which the person has one or more of: acute confusion, coma, reduced consciousness, memory disturbance, ataxia, nystagmus, ophthalmoplegia, hypothermia or unexplained hypotension.
<b>Korsakoff's Psychosis (KP)</b>	A late, neuropsychiatric manifestation of thiamine deficiency characterized by symptoms of anterograde and retrograde amnesia, disorientation, poor recall and/or impairment of recent memory coupled with confabulation. Patients rarely recover from Korsakoff's Psychosis.

### 3. Guideline

Oral thiamine is ineffective in thiamine deficiency and should not be used in the initial treatment phase. The preferred route of thiamine administration is intravenous (IV), although intramuscular (IMI) route is acceptable if IV access cannot be obtained or continued.

Thiamine storage is impaired in chronic alcohol abuse, thus thiamine replacement should be given three times per day (TDS).

Thiamine deficient patients have better outcomes with early treatment therefore all at risk patients should be treated empirically with 200mg IV thiamine at initial presentation.

Ongoing treatment with 200mg IV thiamine TDS should continue for a minimum of three (3) days to ensure adequate thiamine replacement.

Case reports suggest that doses of 200mg may be inadequate to cure WE in some patients with chronic alcohol abuse, thus consider using 500mg IV thiamine TDS if clinical suspicion of WE.

Higher doses of thiamine are impractical via intramuscular injection, thus only give 100mg per dose via this route.

**Note:** It is suggested to pursue IV access if there is clinical suspicion of WE.

Treatment should continue until there is no further clinical improvement.

Thiamine administration is considered safe, however IV doses should be infused over 30 minutes (or 60 minutes if using 500mg) to reduce the likelihood of anaphylaxis.

Consider replacing magnesium if low, as this is a co-factor required for normal functioning thiamine enzymes.

### 4. Key Alerts

Ensure thiamine is given prior to administration of IV glucose (if required), due to the risk of precipitating WE.

### 5. Roles and Responsibilities

As described throughout the guideline.

**All Staff** are required to work within policies and guidelines to make sure that WACHS is a safe, equitable and positive place to be.

### 6. Compliance

Failure to comply with this policy document may constitute a breach of the WA Health Code of Conduct (Code). The Code is part of the [Employment Policy Framework](#) issued pursuant to section 26 of the [Health Services Act 2016](#) (WA) and is binding on all WACHS staff which for this purpose includes trainees, students, volunteers, researchers, contractors for service (including all visiting health professionals and agency staff) and persons delivering training or education within WACHS.

WACHS staff are reminded that compliance with all policies is mandatory.

## 7. Evaluation

This guideline is to be reviewed every five (5) years, or earlier as required.

## 8. Standards

National Safety and Quality Healthcare Standards - 2.8, 4.3, 4.13, 4.14, 5.3, 5.10, 5.28, 5.30.

National Standards for Mental Health Services - 1.3, 2.4, 6.5, 6.8, 10.5.1, 10.5.5, 10.5.6, 10.5.7, 10.5.8.

## 9. References

1. Thomson A, Cook, C, Touquet R, Henry J. The royal college of physicians reports on alcohol: guidelines for managing wernicke's encephalopathy in the accident and emergency department. Alcohol and Alcoholism [Internet]. 2002 [cited 2018 January 2018]; 37(6):513-521. Available from: <https://academic.oup.com/alcalc/article-abstract/37/6/513/204967>
2. Galvin R, Brathen G, Ivashynka A, Hillbom M, Tanasescu R, Leone M. EFNS guidelines for diagnosis, therapy and prevention of wernicke's encephalopathy. European Journal of Neurology [Internet]. 2010 [cited 2018 January 18]; 17:1408-1418. Available from: [www.ncbi.nlm.nih.gov/pubmed/20642790](http://www.ncbi.nlm.nih.gov/pubmed/20642790)
3. Pazirandeh S. Overview of water-soluble vitamins. Uptodate [Internet]. 2017 [cited 2018 January 18]. Available from: [www.uptodate.com](http://www.uptodate.com)
4. So Y. Wernicke encephalopathy. Uptodate [Internet]. 2017 [cited 2018 January 18]. Available from: [www.uptodate.com](http://www.uptodate.com)
5. Charness M. Overview of the chronic neurologic complications of alcohol. Uptodate [Internet]. 2017 [cited 2018 January 18]. Available from: [www.uptodate.com](http://www.uptodate.com)

## 10. Acknowledgements

We acknowledge the following previous site endorsed work and/or contributors used to compile this guideline:

1. Royal Perth Hospital - Guideline for Thiamine Administration in the Emergency Department (Flowchart), November 2011.
2. Fiona Stanley Hospital – Thiamine deficiency: Treatment for alcohol dependent patients (Clinical Guideline FSH-ED-GUI-0004), January 2015.

## 11. Related WACHS Policy Documents

[Alcohol, Tobacco and Other Drugs Clinical Practice Standard](#)

[Assessment, Admission, Treatment and Discharge of Mental Health Patients Policy and Guideline](#)

[Cognitive Impairment Clinical Practice Standard](#)

[Restraint and Seclusion Minimisation Clinical Practice Standard](#)

[Medication Administration Policy](#)

[Disturbed Behaviour Management Clinical Practice Standard](#)

## 12. Related WA Health System Policies

[MP0062/17 Alcohol and Other Drugs Withdrawal Management Policy](#)

[OD0657/16 WA Health Consent to Treatment Policy](#)

## 13. Policy Framework

[Clinical Governance, Safety and Quality](#)

## 14. Appendix

**Appendix 1:** [Administration of Thiamine in Chronic Alcohol Abuse Flow Chart](#)

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on request for a person with a disability**

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**Appendix 1: Administration of Thiamine in Chronic Alcohol Abuse Flow Chart**

