A brief guide to the

Assessment and Treatment of Alcohol Dependence

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Note – The Drug and Alcohol Office is the business name of the Western Australian Alcohol and Drug Authority, which is an independent statutory authority established in November 1974. Its functions are set out in the *Alcohol and Drug Authority Act 1974*.

Website: www.dao.health.wa.gov.au

Government of **Western Australia**
Drug and Alcohol Office

Contents

Introduction

These clinical guidelines have been developed for use by doctors and nurses when assessing and treating a patient with alcohol dependence. They will also be of interest to counsellors seeking detailed information about the medical treatment of alcohol dependence.

Assessment

The comprehensive assessment of a patient with alcohol dependence will enable a case summary and formulation to be developed, a diagnosis to be made and an appropriate treatment plan to be implemented. The assessment should include a history, systemic enquiry, mental state examination, physical examination and blood tests.

History

A comprehensive alcohol and other drug history can take some time to obtain and may require a number of appointments, especially if the reasons for a person's drinking are to be explored. The history should enable a calculation to be made of the number of standard drinks being consumed on the average drinking day. It should also include information about any withdrawal symptoms experienced and any physical or mental health complications from alcohol use. A full history should cover the following:

- presenting problems and reasons for seeking treatment
- treatment goals and motivation to change
- past alcohol and other drug treatment history
- drinking history timeline:
  - age started drinking, first problems, first dependent
  - amount drunk in standard drinks in the last 24 hours and over the last week
  - drinking pattern (type of drink, quantity, frequency) over last month and last year
- features of dependence (See DSM-V page 5)
  - morning withdrawal symptoms
- health complications from drinking
- other consequences from drinking
- history of other drug use
- recent use of other drugs
- current situation: accommodation, relationships, children, social support, work/study, legal issues, other agencies involved in care
- developmental history: family of origin, family relationships, childhood, education and work history, relationship history, abuse and other trauma history
- current and past mental health problems, diagnoses and treatment
- risk assessment: suicide, self harm, aggression and violence
- current physical well being and symptoms of illness
- past medical and surgical history
  - past concussions or head injuries
  - past withdrawal seizures or epilepsy
- current medication
- allergies.

Drinks Guide	Number of Standard drinks
1 can/stubby of full strength beer 4.8%	1.4
1 can/stubby of mid strength beer 3.5%	1.0
1 slab of full strength beer	34
1 glass of wine 100ml	1.0
1 bottle of wine 750ml	7.5
1 cask of wine 4L	39
1 bottle of spirits 700ml	22

Adapted from the National Health and Medical Research Council (NHMRC) Australian Alcohol Guidelines 2009

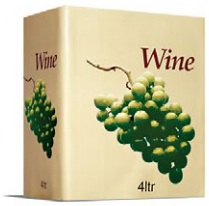
1.4
375ml
Full Strength
4.8% Alc Vol

1
375ml
Mid Strength
3.5% Alc Vol

34
24 x 375ml
Full Strength
4.8% Alc Vol

1
100ml
Standard Serve
of White Wine
11.5% Alc Vol

7.5
750ml
Bottle of
White Wine
12.5% Alc Vol



39
4 Litres
Cask White Wine
12.5% Alc Vol

22
700ml
Bottle of Spirits
40% Alc Vol

Mental state assessment for the alcohol dependent patient

When assessing mental state, the clinician observes how the patient presents and functions during the session and briefly documents these observations. Listed below are the areas covered in a mental state examination and some of the possible findings in alcohol dependent patients. Some of these signs and symptoms may also be related to underlying physical and mental health conditions, therefore it is important to undertake a thorough assessment.

1. Appearance and behaviour

- flushed face, smells of alcohol, poor hygiene, unkempt clothing
- hostile, aggressive, sexualised behaviour (intoxication)
- fearful, paranoid (withdrawal)
- restless, tremors, agitation (withdrawal)
- ataxia (intoxication, Wernicke's encephalopathy)

2. Speech

- slurred (intoxication)

3. Mood and affect

- euphoric, depressed, irritable (intoxication)
- anxious, irritable, suspicious (withdrawal)
- labile (intoxication or withdrawal)

4. Form of thought

- tangential, circumstantial, illogical (intoxication or delirium tremens (DTs)

5. Content of thought

- confabulation (Korsakoff's syndrome)

6. Perception

- hallucinations (DTs)

7. Cognition (see Mini Mental State Examination – Appendix 1)

- clouding of consciousness (intoxication, DTs, Wernicke's, hepatic encephalopathy)
- disoriented to time, place or person (intoxication, DTs, Wernicke's or Korsakoff's)
- poor planning and abstract thinking (brain damage)
- impaired short-term memory (Korsakoff's)

8. Insight

- poor insight (intoxication, brain damage)

Physical examination

Patients presenting with alcohol dependence should have a comprehensive physical examination looking for evidence of intoxication or withdrawal, the stigmata of alcohol dependence and signs of the medical complications of acute or chronic alcohol use.

If a breathalyser is available, a blood alcohol level is recommended prior to a physical examination, as it will set a base line for the physical examination. e.g. withdrawal signs may not be present because of a high blood alcohol level and intoxication may not be present because of a high level of neuroadaptation.

- **Alcoholic facies**
  - conjunctival injection
  - facial telangiectasia
  - rhinophyma
- **Evidence of injury**
- **Anaemia and bruising**
- **Neurological examination**
  - nystagmus
  - ophthalmoplegia with 3rd and 6th nerve palsy
  - impaired coordination
  - truncal ataxia/gait abnormalities
  - peripheral neuropathy/proximal muscle wasting
- **Cardiac enlargement and oedema**
- **Abdominal examination**
  - hepatomegaly
- **Evidence for cirrhosis and portal hypertension**
  - palmar erythema
  - Dupuytren's contracture
  - spider naevi
  - parotid enlargement
  - gynaecomastia
  - splenomegaly
  - ascites
  - asterixis

Blood tests

Blood tests for markers that are likely to change in the context of heavy drinking can be useful in assessing and treating alcohol dependence for several reasons:

- they can be used to corroborate patient provided information
- they can provide feedback regarding alcohol related organ damage to the patient which can assist motivation for change
- they can provide useful information as treatment progresses.

Routine blood tests include full blood count, urea and electrolytes and liver function tests.

Full blood count

Used to screen for low haemoglobin. This may be due to gastro-intestinal blood loss as a result of alcohol induced gastritis/ulceration or nutritional neglect. There may also be red blood cell macrocytosis and a low platelet count from heavy regular alcohol use.

Urea and electrolytes

Used to check the level of important electrolytes and renal function. Low potassium as a result of nutritional neglect or diarrhoea/vomiting is common and can require treatment to reverse. Low sodium is less common but can occur due to high fluid intake. Low magnesium is a common finding in alcohol dependence.

Liver function tests

The most commonly used liver function tests are:

- gamma-glutamyltransferase (GGT)
- aspartate-aminotranferase (AST)
- alanine-aminotransferase (ALT)
- albumin
- bilirubin.

An AST/ALT ratio >1 and significantly raised GGT are suggestive of alcohol-related liver damage.

Elevated bilirubin and liver enzymes suggest acute alcoholic hepatitis. Low albumin may result from reduced liver production in the context of more severe and longer term liver damage.

Other tests for health evaluation

Other blood tests should be ordered depending upon clinical findings and history. Two that are more commonly ordered in alcohol dependence are:

Coagulation profile

Long-term alcohol dependence and resulting advanced liver disease can significantly impair blood coagulation.

A coagulation profile should be ordered if there are signs of advanced liver disease on physical examination.

Blood glucose

Used if the patient has a history of pancreatitis which can affect insulin secretion and cause blood glucose levels to rise (hyperglycaemia). Alcohol impairs gluconeogenesis and may lead to hypoglycaemia, especially in the setting of starvation or glood glucose-lowering (diabetic) medication.

Screening and monitoring

A number of tests can be useful alone or in combination for screening and monitoring a patient's progress. They include raised:

- erythrocyte mean cell volume (MCV)
- gamma-glutamyltransferase (GGT) (not as sensitive or specific as CDT)
- carbohydrate deficient transferrin (CDT) (sensitivity 82% specificity 97% for >50gm per day of alcohol).

Treating alcohol dependence and withdrawal

Alcohol dependence

According to the DSM-5 (American Psychiatric Association, 2013) a diagnosis of alcohol use disorder (previously described as dependence) can be made when a patient meets 2 or more of the following criteria within a 12 month period:

1. Alcohol is often taken in larger amounts or over a longer period than was intended.
2. There is a persistent desire or unsuccessful efforts to cut down or control alcohol use.
3. A great deal of time is spent in activities necessary to obtain alcohol, use alcohol, or recover from its effects.
4. Craving, or a strong desire or urge to use alcohol.
5. Recurrent alcohol use resulting in a failure to fulfill major role obligations at work, school, or home.
6. Continued alcohol use despite having persistent or recurrent social or interpersonal problems caused or exacerbated by the effects of alcohol.
7. Important social, occupational, or recreational activities are given up or reduced because of alcohol use.
8. Recurrent alcohol use in situations in which it is physically hazardous.
9. Alcohol use is continued despite knowledge of having a persistent or recurrent physical or psychological problem that is likely to have been caused or exacerbated by alcohol.
10. Tolerance, as defined by either of the following:
    a) A need for markedly increased amounts of alcohol to achieve Intoxication or desired effect.
    b. A markedly diminished effect with continued use of the same amount of alcohol.
11. Withdrawal, as manifested by either of the following:
    a. The characteristic withdrawal syndrome for alcohol (see next section).
    b. Alcohol (or a closely related substance, such as a benzodiazepine) is taken to relieve or avoid withdrawal symptoms.

Physical dependence and alcohol withdrawal

The development of physical dependence and withdrawal symptoms depends on consuming sufficient alcohol for a sufficient period of time for the body to neuroadapt. As a clinically useful generalisation a person who is physically dependent on alcohol will try to maintain their blood alcohol above 0.1% and once they go below this level they will develop alcohol withdrawal symptoms.

Given that the average rate of alcohol metabolism is one standard drink per hour, this requires the consumption of at least 24 standard drinks per day to maintain a blood alcohol level above 0.1%. However a number of factors contribute to dependence and withdrawal risk and the amount of drinking required in an individual case is difficult to determine. Contributing factors include genetics, age, medical co-morbidities (such as hepatic dysfunction), concomitant medication use, and seizure threshold (Roffman & Stern, 2006). Monitoring for signs of alcohol withdrawal is recommended for patients with a history of drinking more than 60gm (6 standard drinks) of alcohol per day.

The features of alcohol withdrawal include:

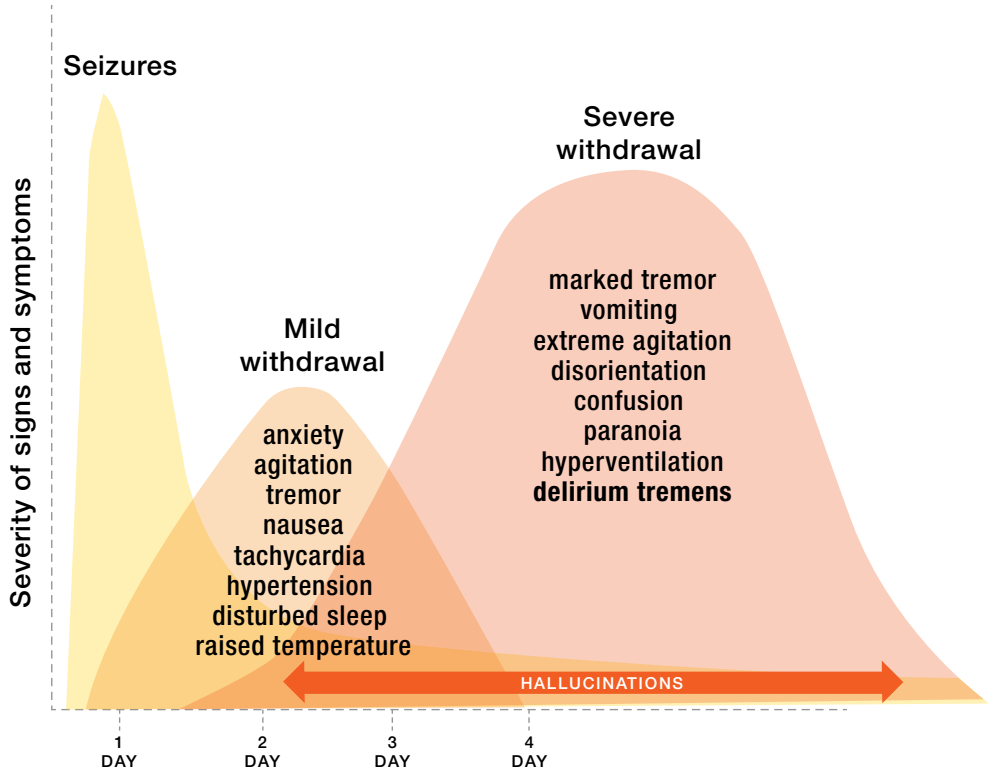
- anxiety and agitation
- tremors
- nausea and vomiting
- sweating
- increased body temperature
- tachycardia
- hypertension
- insomnia
- seizures
- increasing apprehension ranging from fear to terror or paranoia
- delirium tremens – in severe cases of alcohol withdrawal.

Symptoms of withdrawal usually begin 6-24 hours after the last drink and can occur in patients with a blood alcohol level (BAL) above zero.

Figure 1

Alcohol Withdrawal – Severity of signs and symptoms of alcohol withdrawal over time

Source: NSW Health (2000, p. 41)



Seizures

Seizures may occur 6-48 hours after last drinking and are usually generalised tonic–clonic seizures, although partial seizures also occur. A seizure may occur before or during the early development of withdrawal features.

Seizures become more common with a longer history of alcohol dependence and repeated detoxifications (Rogawski, 2005). The risk of seizures increases in those with a history of alcohol withdrawal seizures, idiopathic epilepsy, head injury or concurrent benzodiazepine dependence.

Patients who experience a seizure should initially be managed according to a seizure management protocol. Patients who experience a first or atypical seizure should be referred to a hospital emergency department for review and seizure work-up.

Delirium tremens

Delirium tremens is a severe form of withdrawal that involves marked tremor, extreme agitation and hyperactivity, clouding of consciousness, disorientation and hallucinations. This will typically occur 48 to 96 hours after the last drink, but can occur earlier (Roffman & Stern, 2006). If untreated, there is a high mortality. Delirium tremens is more likely to occur with higher alcohol consumption; a longer history of alcohol dependence; a higher BAL when withdrawal symptoms occur; when there is a concurrent infectious disease, and also when there have been previous seizures or delirium tremens (Palmstierna, 2001).

Patients who develop delirium tremens will generally require intravenous fluids and IV sedation and should be managed in an acute hospital, preferably in a high dependency unit.

Managing alcohol withdrawal

Prior to commencing withdrawal treatment, the clinician should:

- provide the patient and their carer with information about what to expect
- help the patient to develop a plan to cope with withdrawal
- ensure appropriate support
- organise medication and observation as needed
- help the client to plan and commit to follow up support and treatment.

Setting for alcohol withdrawal

Alcohol withdrawal can occur as an:

- inpatient
- outpatient with assistance from a home-based withdrawal service
- outpatient without assistance.

The course a withdrawal process takes and hence the appropriate treatment and support needed, depend upon:

- the severity of alcohol dependence
- whether there is dependence on other drugs in addition to alcohol
- co-existing medical, psychological or psychiatric issues
- psychosocial factors such as physical environment, support, expectations and fears
- the patient's reasons for withdrawing
- the patient's motivation for abstinence.

(Saunders, Jenner, Jenner, & Yang, 2002)

Some women may feel unsafe in an inpatient environment (Swift & Copeland, 1998), particularly if they have a history of sexual abuse and may discharge early.

Specialist inpatient withdrawal is most appropriate when:

- alcohol withdrawal symptoms are likely to be moderate to severe
- there are complicating medical, psychological or psychiatric issues
- there have been previous complicated withdrawals (DTs, seizures)
- there is dependence on other drugs in addition to alcohol
- previous attempts to withdraw as an outpatient have been unsuccessful
- there is a lack of social support
- the patient is pregnant.

(Saunders et al., 2002)

Outpatient withdrawal is most appropriate when:

- the patient is not severely dependent on alcohol
- where previous withdrawals have not been complicated
- there are no significant complicating medical, psychological or psychiatric issues
- there is no significant use of drugs other than alcohol
- the person has a stable home environment
- a non using carer is present to provide support, monitor progress and control medications
- the patient is strongly motivated for abstinence.

(Saunders et al., 2002)

As medical assistance is often required for outpatient withdrawal, patients should be linked with a GP and home withdrawal service whenever possible.

Monitoring alcohol withdrawal

Alcohol withdrawal can be life-threatening and all alcohol dependent patients should be carefully assessed and monitored for severity of withdrawal symptoms. Next Step monitors patients using the Clinical Institute Withdrawal Assessment for Alcohol Scale (CIWA-Ar scale, Reoux & Miller, 2000, see Appendix 2). A score of 9 or more indicates significant withdrawal symptoms and the need for medication. A score of 15 or more indicates severe withdrawals with impending risk of confusion and seizures – urgent medical attention should be provided.

Most of the features of alcohol withdrawal settle over 5-7 days. However a syndrome associated with protracted abstinence can last several months and includes insomnia, mild anxiety and autonomic dysfunction with small elevations in blood pressure, pulse and respiratory rate (Schuckit, 2009).

Medical management of alcohol withdrawal

Early treatment with benzodiazepines is important to prevent severe withdrawal symptoms developing. Patients at risk of severe withdrawal symptoms should be advised to continue drinking until they can receive medical assistance.

Withdrawal management at Next Step involves the routine prescribing of:

- diazepam
- a night-time hypnotic such as temazepam
- thiamine and multi vitamins.

Additional medications (e.g. antiemetics, analgesics) are prescribed if symptoms develop.

Patients who are at increased risk of a seizure during alcohol withdrawal (i.e. patients with a history of seizures, benzodiazepine dependence or high levels of alcohol dependence) should be immediately commenced on a minimum of diazepam 10mg qid as a seizure may precede the development of withdrawal signs. These patients will usually also require additional diazepam as per CIWA-Ar scale score.

Outpatient or home withdrawal medication

Drug	Dose/frequency	
Diazepam	5-10mg oral qid	Reduced over 5-7 days
Temazepam	10-20mg oral nocte	3-5 days
Metoclopramide	10mg 6 hourly O/IMI prn	
Thiamine	300mg oral daily	5 days

Inpatient withdrawal medication

Drug	Dose	
Diazepam	10-20mg oral tds or qid Plus PRN 5-20mg subject to CIWA-Ar score	Reduced over 5-7 days
OR		
Diazepam	5-20mg oral 2-4 hourly subject to CIWA-Ar score	Up to 120mg in the first 24 hours and then rapidly reduced
Temazepam	10-20mg oral nocte	3-5 days
Metoclopramide	10mg O/IMI 6 hourly prn	
Thiamine	250mg IMI/day	3-5 days
Thiamine	300mg oral daily	Duration of admission

In the majority of patients benzodiazepines should be ceased prior to planned discharge as there exists the potential to develop a dependence on benzodiazepines.

Thiamine and Wernicke – Korsakoff Syndrome

Thiamine (Vitamin B1) deficiency is common in heavy drinkers due to poor nutrition, poor absorption due to impaired intestinal absorption, possibly decreased stores (liver disease), increased loss (chronic diarrhoea), impaired utilisation (Mg deficiency). Thiamine deficiency can lead to Wernicke's encephalopathy.

Signs of Wernicke's encephalopathy include:

- confusion
- ataxia – truncal
- oculomotor abnormalities (nystagmus and opthalmoplegia – internuclear opthalmoplegia 3rd nerve and 6th nerve)
- coma, hypothermia, hypotension.

Many cases can be sub-clinical.

Without immediate administration of thiamine there can be irreversible cognitive damage known as Korsakoff's syndrome, due to bilateral lesions in the limbic system including the mammilliary bodies of the hypothalamus.

Signs of Korsakoff's syndrome are:

- anterograde amnesia (inability to form new memories) and retrograde amnesia for relatively recent events
- disorientation to time
- confabulation (making up stories)
- apathy.

Oral thiamine (50-100mg) should be taken daily by all alcohol dependent patients.

For patients undergoing alcohol withdrawal, the following thiamine regime is recommended:

- For healthy patients who have adequate dietary intake, 300mg/day of oral thiamine should be administered for 5 days.
- Patients in poor health with poor dietary intake will have poor absorption of oral thiamine and should therefore be administered 250mg/day of thiamine parenterally for 3-5 days, then oral doses of 300mg/day for the duration of their admission.
- Patients with a diagnosis of acute Wernicke's are generally managed at an acute hospital and may be given 500mg TDS IV for 2 days then 500mg/day IV for 5 days. (Lingford-Hughes, Welch & Nutt, 2004)

Relapse prevention pharmacotherapies

Naltrexone

Naltrexone is an opioid antagonist that blocks the effects of endogenous opiates which are released during alcohol consumption or during exposure to alcohol related cues, and is thought to reduce the reinforcing effects of alcohol (Jupp & Lawrence, 2010).

Most clinical trials find naltrexone reduces cravings and the amount drunk per drinking episode (Jupp & Lawrence, 2010). It appears to have little effect on returning to drinking *per se*, but does appear to reduce the rate at which patients return to heavy drinking particularly when combined with counselling (Anton et al., 2006).

Naltrexone is contraindicated in patients with current or recent use of opioid medication and is not suitable for people who have pain disorders needing opioid analgesia. Patients who are suffering from depression should be monitored closely.

Naltrexone has shown hepatotoxic potential, particularly at doses above that recommended. Naltrexone should not be used in patients with acute hepatitis or liver failure, and used with caution in those with active liver disease.

The safety of naltrexone for pregnant or breastfeeding women has not been established.

The recommended daily dose of naltrexone is 50mg (1 tablet).

Acamprosate

Acamprosate is a synthetic GABA analogue that reduces glutamatergic hyperactivity and is thought to reduce alcohol withdrawal associated negative affect and reduce craving and alcohol related cue induced relapse during abstinence (Jupp & Lawrence, 2010).

A number of trials have shown that acamprosate increases time to relapse, decreases number of drinks per drinking day and reduces craving in alcohol dependent patients (Schuckit, 2009). However it has been found to be less effective than naltrexone in terms of reducing craving which could be explained by the development of tolerance to the drug which has been found in animal studies (Jupp & Lawrence, 2010). In addition, US-based clinical trials have not obtained the same positive results as European trials which may be due to methodological differences but does suggest that further research is needed (Jupp & Lawrence, 2010). Acamprosate and naltrexone treatments can be used in combination, and although some research has found the combination more effective than either drug alone, there is uncertainty over whether acamprosate adds anything to naltrexone alone (Foy, 2007).

Acamprosate is reasonably well tolerated (side effects include gastro-intestinal upset and diarrhoea) and without serious harms (Garbutt, West, Carey, et al., 1999; Mason, 2003). It is considered to be more effective when combined with counselling (Foy, 2007).

Acamprosate is not recommended for women who are pregnant or breastfeeding.

Subject to weight, the recommended daily dose of acamprosate for an adult is 1998mg (2 x 333mg tds).

Disulfiram

Disulfiram inhibits aldehyde dehydrogenase, an enzyme needed to metabilise alcohol. This causes acetaldehyde to accumulate in the body, causing uncomfortable and potentially dangerous symptoms if alcohol is ingested. These symptoms typically include nausea, vomiting, flushing, rapid pulse rate, increased blood pressure and headache.

There is little evidence that disulfiram enhances abstinence but there is evidence that it reduces drinking days (Garbutt et al., 1999). Non-compliance rates are high and compliance is enhanced by supervision (Laaksonen, Koski-Jannes, Salaspuro, Ahtinen, & Alho, 2008), high patient motivation for abstinence and good non drinking social support networks.

Disulfiram has some relatively benign side effects including metallic taste, sedation, rash and temporary impotence. Very rare but severe side effects include neuropathies, depression, psychotic symptoms, increased liver function tests and hepatitis. (Schuckit, 2009). Because of the severe reaction when alcohol is ingested with disulfiram, it should not be used for people with diabetes, heart disease, stroke or psychosis and should be used with caution in patients with liver disease. Disulfiram should only be prescribed with close medical supervision and cautious monitoring of blood counts and liver function tests.

The safety of disulfiram for pregnant or breastfeeding women has not been established.

Patients should be fully withdrawn from alcohol before commencing disulfiram.

The recommended daily dose of disulfiram is 200-400mg (1-2 tablets).

Future potential relapse prevention pharmacotherapies

Various medications are currently being investigated for their role in the reduction or cessation of alcohol use and as anti-craving agents. To discuss these medications in any depth is beyond the scope of this booklet.

These medications include the following:

- Baclofen
- Nalmefene
- Topiramate and other anticonvulsants
- Dopamine agonists
- Gabapentin
- Ondansetron
- Oxytocin

Counselling

All patients should be offered counselling and this can be supplemented by the use of self help resources. Guidelines and resources produced by the Drug and Alcohol Office include:

Drug and Alcohol Office. (2014). *Self Help Manual.* Perth, Western Australia: Author.

Drug and Alcohol Office. (2014). *Here's to your health: A guide to reducing alcohol-related risks and harms.* Perth, Western Australia: Author.

Marsh, A., O'Toole, S., Dale, A., Willis, L., & Helfgott, S. (2013). *Counselling guidelines: Alcohol and other drug issues* (3rd ed.). Perth, Western Australia: Drug and Alcohol Office.

Psychology

If patients are experiencing significant mental health issues that do not diminish with reduced alcohol intake or interfere with reducing alcohol intake they should be considered for a psychology referral and/or psychiatric review.

Neuropsychology

All alcohol dependent patients should be considered for a neuropsychology referral and assessment. Between 50% – 80% of people with problematic alcohol use display deficits on neuropsychological tests (Bates, Bowden & Barry, 2002) and 45% to 70% of clients entering treatment for problematic alcohol use have impairments in problem solving, abstract thinking, concept shifting, psychomotor performance, and memory tasks (Oscar-Berman, & Marinkovic, 2007). These impairments are difficult to detect in structured interviews (Fals-Stewart & Schafer, 1992; Fals-Stewart & Lucente, 1994) and are usually not apparent without neuropsychological testing. Clinicians should consider administering the Mini-Mental State Examination (Folstein, Folstein, & McHugh, 1975; Appendix 1) or the Montreal Cognitive Assessment (MoCA) to patients where neuropsychological deficits are suspected.

Further indications for a neuropsychological assessment include a history of head injury resulting in loss of consciousness for longer than 30 minutes, or diagnosis of a neurological condition such as epilepsy or stroke.

A consideration with elderly patients is a differential diagnosis between alcohol related cognitive impairment and a neurodegenerative disorder, such as Alzheimer's disease. In many cases a neuropsychological assessment can assist with the diagnosis of the condition and guide treatment and patient management.

Useful resource

A comprehensive national alcohol treatment resource has also been produced:

Haber, P., Lintzeris, N., Proude, E., & Lopatko, O. (2009). *Guidelines for the Treatment of Alcohol Problems.* Barton, Australian Capital Territory: Department of Health and Ageing.

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Appendix 1 MMSE Cognitive examination

The Mini Mental State Examination (MMSE) was introduced in 1975 by Folstein et al., (1975). It is a brief 30-item test that screens for cognitive impairment. It takes about 10 minutes to administer. It assesses various functions including arithmetic, memory and orientation. The test can be a component of the mental state assessment.

Scores may need to be corrected for educational attainment and age, and may not be an accurate reflection of cognitive impairment if the person is intoxicated or withdrawing.

Scoring the MMSE (at Next Step Drug and Alcohol Service)

The test is scored out of 30.

27-30: Cognition likely to be intact

23-27: Cognitive impairment possible. Consider referral for neuropsychological assessment.

<23: Cognitive impairment highly likely. Refer for neuropsychological assessment.

Alcohol related cognitive impairment and the MMSE profile

The MMSE is only a screening test and does not identify all aspects of alcohol related cognitive impairment. In addition, scores will be negatively influenced by current alcohol use and recent heavy alcohol use. A clearer picture of potential alcohol related cognitive impairment can only be obtained when the patient has been abstinent for several weeks.

Montreal Cognitive Assessment (MoCA)

This is a recommended alternative brief screening instrument to detect mild cognitive impairment. Further information: www.mocatest.org

Mini Mental State Examination

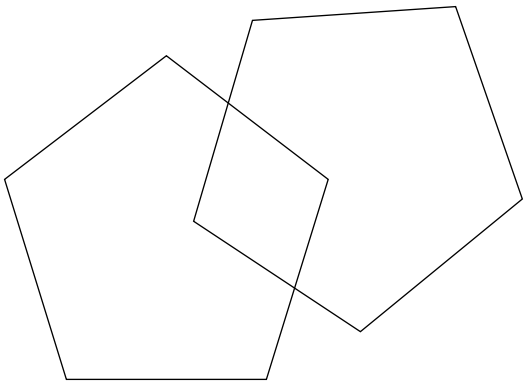
MENTAL FUNCTION	SCORE
DATE_____ CLINICIAN _____ **ORIENTATION** Score one point for correct answers to each of the following questions.	
What is the **Time? Day? Date? Month? Year?**	5 points ( )
What is the name of **This Clinic? This suburb? This city? This state? This country?**	5 points ( )
REGISTRATION Say: "I'm going to name 3 objects for you and I want you to remember them. The objects are **Car, Dog** and **Book**. Can you repeat them?" Score 1 point for each object correctly repeated (order not important). Endeavour, by further attempts and prompting, to have all three repeated, so as to test recall later.	3 points ( )
ATTENTION AND CALCULATION Ask the client to subtract 7 from 100, and then 7 from the result — repeat this five times, scoring 1 for each time a correct subtraction is performed.	5 points ( )
RECALL Ask the client to recall the three objects previously repeated (Car, Dog, Book). Score 1 for each correctly recalled.	3 points ( )
LANGUAGE Show the client a **pencil** and ask them to name it. Show the client a **watch** and ask them to name it. Score 1 point for each object correctly named.	2 points ( )
Ask the client to repeat the phrase: "No ifs, ands or buts". Score 1 point if correctly repeated.	1 point ( )
Hand the client the MMSE sheet and say: "Take this piece of paper in your **right hand**, fold it in half with **both hands**, and place it on the **floor**". Score 1 point for each stage correctly executed.	3 points ( )
Point to CLOSE YOUR EYES (over page) and ask the client to obey what is written. Score 1 point if client closes their eyes.	1 point ( )
Ask the client to write a sentence. Score 1 if the sentence is sensible and has a verb and a subject.	1 point ( )
VISUAL-SPATIAL Ask the client to copy the diagram over the page. Score 1 point if this is correctly copied (Two 5-sided figures with the intersection creating a 4-sided figure).	1 point ( )
TOTAL SCORE (=30)	

Mini Mental State Examination

CLOSE YOUR EYES

SENTENCE

_____



Appendix 2 Next Step version of the Revised Clinical Institute Withdrawal Assessment for Alcohol Scale (CIWA-Ar) (Reoux & Miller, 2000)

Alcohol Withdrawal Assessment

DATE OF ADMISSION _____/_____/____

Seizure History Yes ☐ No ☐

WITHDRAWAL DAY																					
TIME																					
BAL																					

	BP 240																				
	230																				
	TEMP 220																				
TEMP ●	40° 210																				
	39° 200																				
	38° 190																				
	37° 180																				
	36° 170																				
	35° 160																				
	150																				
BP	PULSE 140																				
	130 130																				
	120 120																				
	110 110																				
	100 100																				
PULSE ●	90 90																				
	80 80																				
	70 70																				
	60 60																				
	50 50																				
	40 40																				

1. Nausea and Vomiting																					
2. Tremor																					
3. Paroxymal sweats																					
4. Anxiety																					
5. Agitation																					
6. Tactile Disturbances																					
7. Auditory Disturbances																					
8. Visual Disturbances																					
9. Headache																					
10. Orientation																					
TOTAL (Max 67)																					
DIAZEPAM DOSE (mg)																					
NURSE INITIALS																					

Withdrawal Symptoms	CIWA-Ar score	Diazepam dose	CIWA-Ar frequency
Mild	0–8	NIL	CIWA-Ar prior to medication 4-6 hourly
Moderate	9–14	5–15mg	CIWA-Ar prior to medication 2-4 hourly
Severe	15 or more	20mgs	CIWA-Ar repeated in 1 hr – if no reduction in score discuss with doctor.

CIWA-Ar	
1. NAUSEA AND VOMITING – Ask " Do you feel sick to your stomach? Have you vomited? Observation. 0 no nausea and no vomiting 1 mild nausea with no vomiting 2 3 4 intermittent nausea with dry heaves 5 6 7 constant nausea, frequent dry heaves and vomiting	**6. TACTILE DISTURBANCES –** Ask "Have you any itching, pins and needles sensations, any burning, any numbness, or do you feel bugs crawling on or under your skin?" Observation. 0 none 1 very mild itching, pins and needles, burning or numbness 2 mild itching, pins and needles, burning or numbness 3 moderate itching, pins and needles, burning or numbness 4 moderately severe hallucinations 5 severe hallucinations 6 extremely severe hallucinations 7 continuous hallucinations
2. TREMOR – Arms extended and fingers spread apart. Observation. 0 no tremor 1 not visible, but can be felt fingertip to fingertip 2 3 4 moderate, with patient's arms extended 5 6 7 severe, even with arms not extended	**7. AUDITORY DISTURBANCES –** Ask "Are you more aware of sounds around you? Are they harsh? Do they frighten you? Are you hearing anything that is disturbing to you? Are you hearing things you know are not there?" Observation. 0 not present 1 very mild harshness or ability to frighten 2 mild harshness or ability to frighten 3. moderate harshness or ability to frighten 4 moderately severe hallucinations 5 severe hallucinations 6 extremely severe hallucination 7 continuous hallucinations
3. PAROXYSMAL SWEATS – Observation 0 no sweat visible 1 barely perceptible sweating, palms moist 2 3 4 beads of sweat obvious on forehead 5 6 7 drenching sweats	**8. VISUAL DISTURBANCES –** Ask "Does the light appear to be too bright? Is its colour different? Does it hurt your eyes? Are you seeing anything that is disturbing to you? Are you seeing things you know are not there?" Observation. 0 not present 1 very mild sensitivity 2 mild sensitivity 3 moderate sensitivity 4 moderately severe hallucinations 5 severe hallucinations 6 extremely severe hallucinations 7 continuous hallucinations
4. ANXIETY – Ask "Do you feel nervous?" Observation. 0 no anxiety, at ease 1 mildly anxious 2 3 4 moderately anxious, or guarded, so anxiety is inferred 5 6 7 equivalent to acute panic states as seen in severe delirium or acute schizophrenic reactions	**9. HEADACHE, FULLNESS IN HEAD –** Ask "Does your head feel different? Does it feel like there is a band around your head?" Do not rate for dizziness or lightheadedness. Otherwise, rate severity. 0 not present 1 very mild 2 mild 3 moderate 4 moderately severe 5 severe 6 very severe 7 extremely severe
5. AGITATION – Observation. 0 normal activity 1 somewhat more than normal activity 2 3 4 moderately fidgety and restless 5 6 7 paces back and forth during most of the interview, or constantly thrashes about	**10. ORIENTATION AND CLOUDING OF SENSORIUM –** Ask "What day is this? Where are you? Who am I?" 0 oriented and can do serial additions 1 cannot do serial additions or is uncertain about date 2 disoriented for date by no more than 2 calendar days 3 disoriented for date by more than 2 calendar days 4 disoriented for place/or person
The CIWA-Ar scale measures 10 symptoms. Scores of less than 9 indicate minimal to mild withdrawal. Scores of 9 to 15 indicate moderate withdrawal (marked autonomic arousal); and scores of 15 or more indicate severe withdrawal (impending *delirium tremens).*	

The CIWA-Ar alcohol withdrawal assessment tool should be discontinued after 5 to 7 days

Notes

Notes

Government of **Western Australia**
Drug and Alcohol Office

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