Preoperative Alcohol Consumption - Guidelines for Assessment and Management

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Summary and Key Recommendations

• “Make every contact count” Use the preoperative assessment clinic as an opportunity to identify patients at risk due to their drinking.

• Alcohol presents hidden harms to individuals that both patient and clinician may be unaware of.

• Alcohol consumption prior to surgery has been shown to increase risk of a number of often life threatening post-operative complications.

• Use alcohol assessment to identify preoperative interventions to improve postoperative outcomes.

• Plan surgery to coincide with achievement of alcohol treatment goals.

• Provide support for alcohol reduction or cessation: utilising local services and protocols.
INTRODUCTION

The following guideline will provide a synopsis of evidence for alcohol-related harms and risks for patients planning to undergo a surgical procedure. Guidance on how to detect patients at risk due to alcohol consumption will be presented alongside evidence-based guidance on how to optimise care and reduce post-operative complications.

Across the western world, the incidence of hazardous drinking in elective surgical settings has been estimated at between 7 and 49% and in emergency surgical patients between 14 and 38%. [1]

Less than 10% of drinkers report having discussed their alcohol consumption with a healthcare professional [2]. This is disappointing, as opportunities are being missed, and we know that early identification of Alcohol Use Disorders (AUD) leading to an intervention has been shown to be highly cost effective with one review concluding that “The public sector saves £5 for every £1 spent on treatment” [3]. Furthermore, of those patients who have been identified as having an AUD only 1 in 6 receive any form of treatment [4].

Alcohol consumption prior to surgery has been shown to increase risk of a number of often life threatening post-operative complications. Given that the risk of poor outcomes increases with alcohol consumption, it seems imperative to determining the susceptibility through screening for AUDs [5]. Preoperative assessment clinics are an ideal environment to opportunistically identify patients with AUDs, plan appropriate interventions and prevent future harms.

Alcohol-related risks in the surgical patient

**Infection.** Alcohol-induced dysregulation of the immune system renders the patient susceptible to a vast array of infectious pathogens [6] and has been shown to be an independent predictor of superficial surgical site infection, wound disruption and pneumonia [7]. Indeed, drinking in excess of just 2 units per day can produce a reduction in immune capacity [1], making wound infection more likely [8].

**Subclinical cardiac insufficiency and arrhythmias** are also features of patients with AUDs undergoing surgery [9], and are important risk factors for development of postoperative cardiac complications. Importantly, preoperative abstinence significantly reduces the incidence of postoperative arrhythmias [8] [10].

**Bleeding.** Alcohol has a direct effect on blood coagulation and fibrinolysis. Drinking 2 drinks per day can increase the risk of post-operative bleed [11].

**Peri and post-operative Acute Alcohol Withdrawal (AAW).** Symptoms of AAW will develop in alcohol-dependent patients between 6 and 24 hours from their last drink. This is an important consideration when abstinence is enforced by illness or injury requiring surgery [12]. In a large Australian study, it has been reported that up to 8% of surgical admissions with an AUD had seizures or hallucinations during their admission [13], a further study of surgical inpatients reported a 16% incidence of post-operative AAW, the incidence raising to 31% in trauma patients [14].

Thiamine deficiency leads to delays in both wound healing and functional recovery [15].

**Length of stay (LOS).** Any surgical complication will result in increased LOS in hospital, and a threefold increased risk of death [16] [7].
Screening for Alcohol Use Disorders

Whilst society for the most part accepts alcohol consumption; it simultaneously stigmatises alcohol-related problems. This means that patients who are not obviously drunk on a regular basis, but who may nevertheless be drinking more than they should, often miss out on treatment and advice that would help them through the process of surgery.

It is important that you familiarise yourself with the Chief Medical Officers of England low risk drinking guideline for both men and women which states:

- To keep health risks from alcohol to a low level it is safest not to drink more than 14 units a week on a regular basis.
- If you regularly drink as much as 14 units per week, it's best to spread your drinking evenly over three or more days. If you have one or two heavy drinking episodes a week, you increase your risk of long-term illness and injury.
- The risk of developing a range of health problems (including cancers of the mouth, throat and breast) increases the more you drink on a regular basis.
- If you wish to cut down the amount you drink, a good way to help achieve this is to have several drink-free days a week.

1. Risk categorisation according to units consumed.

National Institute for Health and Care Excellence (NICE) define harms as follows [17]:

**Harmful drinking (high-risk drinking)**
- A pattern of alcohol consumption that is causing mental or physical damage (ICD-10, DSM-V).
- Drinking 35 units a week or more for women. Drinking 50 units a week or more for men.

**Hazardous drinking (increasing risk drinking)**
- A pattern of alcohol consumption that increases someone's risk of harm. Some would limit this definition to the physical or mental health consequences (as in harmful use). Others would include the social consequences. The term is currently used by the World Health Organization to describe this pattern of alcohol consumption. It is not a diagnostic term.
- Drinking more than 14 units a week, but less than 35 units a week for women. Drinking more than 14 units a week, but less than 50 units for men (Health Survey for England 2015: Adult alcohol consumption).

**Higher-risk drinking**
- Regularly consuming over 50 alcohol units per week (adult men) or over 35 units per week (adult women).

2. Alcohol Use Disorder Identification Tool (See appendix)

AUDIT has been validated in hospital and community settings, and has 92% -94% sensitivity and specificity of 94%-96% using the ≥8/40 threshold, with overall accuracy of 94.4% [18, 19]. AUDIT scores of 5 or more up to a year before surgery have been associated with increased postoperative complications. The higher the AUDIT score the greater the risk [20].

Patients found to be scoring 8 or more on a full AUDIT questionnaire should be offered support and motivational advice on reducing their alcohol consumption. On follow-up appointment, following delivery of brief advice, if the patient hasn’t managed to cut down their drinking further assessment to consider the possibility of alcohol dependence should be undertaken [17]. Furthermore, as part of
a screening process AUDIT is a sensitive tool to identify potential dependence in outpatient treatment settings [21], with those scoring >16 requiring further assessment.

Screening for alcohol dependence and associated risk of AAW, and the need for medically assisted withdrawal should be integrated in the preoperative and emergency assessment [22-24].

3. Severity of Alcohol Dependence Questionnaire (SADQ)

SADQ is a quick, reliable, and valid instrument of 20-items designed to measure severity of dependence on alcohol and can be self-administered. The questionnaire focuses upon the experience of withdrawal symptoms [25]. From a clinical perspective NICE recommend subdividing dependence into categories of mild, moderate and severe. “People with mild dependence (those scoring 15 or less) usually do not need assisted alcohol withdrawal. People with moderate dependence (with a SADQ score of between 15 and 30) usually need assisted alcohol withdrawal, which can typically be managed in a community setting unless there are other risks. People who are severely alcohol dependent (with a SADQ score of more than 30) will need assisted alcohol withdrawal, typically in an inpatient or residential setting”[17].

The principles of AAW therapy are to provide an appropriate protocol based benzodiazepine [17] guided by repeated reassessment with validated tools. This approach has been shown to reduce LOS and morbidity [26].

4. Biochemical markers

The use of biochemical markers may seem attractive however, they have not been shown to be superior to screening tools for identification in the surgical setting. This is due to the introduction of uncertainties and variances, leading to problems in interpreting both positive and negative test results [1, 27, 28]. In general populations questionnaires are superior for screening purposes [29] but biochemical markers may supply additional information. Moreover evidence from studies conducted in secondary care settings have shown that biofeedback in the form of including biomarker results as part of a brief intervention (FRAMES[35]) may help motivate patients with an AUD to change their drinking behaviour. A pilot study has shown that 90% of patients reported that biofeedback of information about their liver damage (assessed with non-invasive fibrosis tests) helped them reduce their alcohol consumption [36].

**CDT** Studies show that CDT is much better at detecting chronically heavy drinkers than hazardous drinkers [30] CDT also performed better in detecting patients with alcohol dependence than in detecting patients with high alcohol consumption irrespective of dependence [31].

**GGT** As other medical conditions and several medications may cause an elevation of GGT besides alcohol use, in non-healthy populations the specificity to detect chronic heavy drinking may be reduced [32].

**MCV** The sensitivity of MCV to detect heavy drinking is about 40–50%, but its specificity is high (80–90%) and very few abstainers and social drinkers will have elevated MCV [27].

Combining biochemical markers enhances detection of problem drinking in men but not in women [32].

**AST/ALT** Ratio Most patients with high alcohol consumption but without severe liver disease do not have an AST/ALT ratio above 1. High AST/ALT ratio suggests advanced alcoholic liver disease, [33] and does not appear to be useful in identifying AUDs [34].
What to do in the preoperative assessment clinic

1. Aims of Treatment
Prevent postoperative complications that may lead to increased mortality, effect patient well-being, delay recovery, increase length of hospital stay, prevent unrecognised post-operative withdrawal symptoms.
• Stratification of patient risk to identify appropriate treatment plans.
• Plan surgery to coincide with achievement of alcohol treatment goals.
• Provide support for alcohol reduction or cessation: utilising local services and protocols.

2. You are now ready to have a conversation with your patient about their drinking
If the patient drinks alcohol administer the AUDIT questionnaire [19].
• Begin the AUDIT by saying “Now I am going to ask you some questions about your use of alcoholic drinks during this past year.”
• Read the questions as written. Record answers carefully.
• Explain what is meant by “alcoholic drinks or units” by using examples of beer, wine, vodka, etc. (Figure 1)
• Record the score.

Use the AUDIT tool scoring system to categorise risk and determine the most appropriate intervention. (Table 1 & Appendix)

Table 1. AUDIT score, interpretation, and action

<table>
<thead>
<tr>
<th>AUDIT Score</th>
<th>Risk category</th>
<th>Action</th>
</tr>
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<tbody>
<tr>
<td>0 to 7</td>
<td>indicates low risk</td>
<td>Give brief advice to reduce risk for alcohol harm</td>
</tr>
<tr>
<td>8 to 15</td>
<td>indicates increasing risk</td>
<td>Provide brief intervention (structured approach)</td>
</tr>
<tr>
<td>16 to 19</td>
<td>indicates higher risk</td>
<td>Provide brief intervention (structured approach)</td>
</tr>
<tr>
<td>20 or more</td>
<td>Indicates possible dependence</td>
<td>Consider referral to specialist alcohol harm assessment.</td>
</tr>
</tbody>
</table>

Figure 1. Unit Calculator

**ONE UNIT OF ALCOHOL EQUALS 10ML OR 8G OF PURE ALCOHOL**

YOU CAN WORK OUT HOW MANY UNITS THERE ARE IN ANY DRINK BY MULTIPLYING THE TOTAL VOLUME OF A DRINK (IN ML) BY ITS ABV (MEASURED AS A PERCENTAGE) AND DIVIDING THE RESULT BY 1,000.

**STRENGTH (ABV) X VOLUME (ML) ÷ 1,000 = UNITS**

EXAMPLE, TO WORK OUT THE NUMBER OF UNITS IN A PINT (568ML) OF STRONG LAGER (ABV 5.2%):

5.2 (%) X 568 (ML) ÷ 1,000 = 2.95 UNITS
3. **How to deliver brief advice.**
This is a simple process of helping the patient understand risk categories for alcohol consumption and provide feedback on their individual risk.

4. **How to deliver a brief intervention (non-dependent patients)**
Now that you know what your patient is drinking at increasing risk, you can identify any problems the patient may be experiencing and use this to inform the conversation about change. Brief intervention effectiveness is enhanced when it is delivered in a structured way. The components of a brief intervention can be guided using the FRAMES approach [35].

**FRAMES**

**Feedback:** talk to your patient about the potential risk of their drinking on their surgery and post-operative recovery.

**Responsibility:** be clear that changes can only happen if the patient agrees.

**Advice:** help the patient with information and strategies to change, e.g. reduce drinking by reducing the strength of their drinks and having drink free days.

**Menu:** help the patient explore options that best suit their life situation.

**Empathy:** always use an approach that is warm, reflective and understanding.

**Self-efficacy:** help the patient believe in their ability to change and your confidence in that ability.

5. **How to manage the alcohol dependent patient**

It is important that any patient with potential dependence undergoes an assessment by a specialist. This will very much depend upon local availability. However, many hospitals now have Alcohol Care Teams and these should be utilised where available, alternatively referral to specialist community teams will be needed.

The aim of specialist assessment in the preoperative patient is to provide timely access to alcohol withdrawal management and safely achieve abstinence prior to surgery.

**Conclusions**

Preoperative clinics may be the ideal environment in which to identify alcohol as a risk factor for peri and post-operative complications. This guideline proposes tools to be used to facilitate the accuracy of that assessment and facilitate appropriate and effective timely interventions.
References

### Appendix 1 AUDIT tool

**Evidence-based Guidelines for Preoperative Assessment Units**

#### Scoring system

<table>
<thead>
<tr>
<th>AUDIT</th>
<th>Scoring system</th>
<th>Your score</th>
</tr>
</thead>
<tbody>
<tr>
<td>How often do you have a drink containing alcohol?</td>
<td>Never</td>
<td>0</td>
</tr>
<tr>
<td>How many units of alcohol do you drink on a typical day when you are drinking?</td>
<td>1 - 2</td>
<td>1, 2</td>
</tr>
<tr>
<td>How often have you had 6 or more units if female, or 8 or more if male, on a single occasion in the last year?</td>
<td>Never</td>
<td>0</td>
</tr>
<tr>
<td>How often during the last year have you found that you were not able to stop drinking once you had started?</td>
<td>Never</td>
<td>0</td>
</tr>
<tr>
<td>How often during the last year have you failed to do what was normally expected from you because of your drinking?</td>
<td>Never</td>
<td>0</td>
</tr>
<tr>
<td>How often during the last year have you needed an alcoholic drink in the morning to get yourself going after a heavy drinking session?</td>
<td>Never</td>
<td>0</td>
</tr>
<tr>
<td>How often during the last year have you had a feeling of guilt or remorse after drinking?</td>
<td>Never</td>
<td>0</td>
</tr>
<tr>
<td>How often during the last year have you been unable to remember what happened the night before because you had been drinking?</td>
<td>Never</td>
<td>0</td>
</tr>
<tr>
<td>Have you or somebody else been injured as a result of your drinking?</td>
<td>No</td>
<td>Yes, but not in the last year</td>
</tr>
<tr>
<td>Has a relative or friend, doctor or other health worker been concerned about your drinking or suggested that you cut down?</td>
<td>No</td>
<td>Yes, but not in the last year</td>
</tr>
</tbody>
</table>

**Scoring:**

- 0 – 7 Lower risk
- 8 – 15 Increasing risk
- 16 – 19 Higher risk
- 20+ Possible dependence