Development of a Tool Kit to Assist Surgical Nurses in Identifying, Preventing, and Managing Alcohol Withdrawal Syndrome

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Abstract

Background: Alcohol abuse is linked to over 200 different diseases, conditions and types of injuries, which lead to substantial costs to the health care system. Newfoundland and Labrador has one of the largest rates of excessive alcohol consumption in the country. Patients who consume dangerous amounts of alcohol are at risk for developing alcohol withdrawal syndrome (AWS) when admitted to the hospital setting. Nurses could then be faced with the complex task of caring for patients who are undergoing both surgical recovery and AWS. Without the proper tools to identify alcohol use disorders (AUDs), and to identify, prevent, and manage AWS, it is exceptionally difficult for nurses to manage these patients, which exposes them to a variety of negative patient and health care associated outcomes.

Purpose: The purpose of this practicum was to develop a tool kit to provide nurses at St. Clare's Mercy Hospital (SCMH) in St John's Newfoundland and Labrador with additional information on AUDs, as well as how to identify, prevent, and manage AWS in surgical patients. Additionally, educational material was developed for patients to inform them on the dangers of alcohol use prior to surgery and inaccurate reporting of their drinking habits.

Methods: An integrative literature review was conducted first. The perceptions of health care professionals in surgical care at SCMH were then assessed through semi-structured informant interviews. Furthermore, an environmental scan was conducted to determine how AWS is managed in other health care settings. The development of the tool kit was guided by the works of Knowles' Adult Learning Theory and Benner's Novice to Expert Model.

Results: Based on the findings, it was apparent that there was a need for patient and health care professional education regarding alcohol use and alcohol withdrawal. It was ascertained that the best means of assisting surgical nurses in caring for patients experiencing alcohol withdrawal

was to provide a tool kit to educate them on AUDs and AWS.

Conclusion: The tool kit was developed to meet the identified needs of surgical nurses at SCMH, as well as to inform their patients on alcohol withdrawal postoperatively.

Key words: surgical patients; alcohol use disorders (AUDs); alcohol withdrawal syndrome (AWS); tool kit; patient education.

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Despite the harmful consequences associated with heavy alcohol consumption, many Canadians still partake in various forms of harmful drinking patterns. Not only does high alcohol consumption lead to negative physical, emotional, social, and economic consequences, such as increased rates of premature death, disability and disease, violent crimes, and reduced productivity, it also places an excessive strain on the health care system (Public Health Agency of Canada [PHAC], 2015). The problems associated with alcohol are so extensive that the World Health Organization (WHO, 2018) listed alcohol consumption as the third highest risk factor for poor health in 2017, and the Canadian government created specific low risk drinking guidelines to help Canadians drink in safe amounts (Centre for Addictions and Mental Health [CAMH], 2011).

Individuals who partake in harmful drinking patterns or who are alcohol dependent are classified as having alcohol use disorders (AUDs). AUDs are a significant risk factor for compromises in health; a risk that significantly increases when patients are admitted to hospital for surgical procedures (Kip et al., 2008). This increased risk of negative health outcomes is associated with the development of alcohol withdrawal syndrome (AWS), a disorder that develops from the sudden cessation of alcohol intake. AWS has been found within research to cause a number of negative outcomes especially in surgical patients, such as increased rates of morbidity and mortality (Genther & Gourin, 2012; Gorden, Olstein, & Conigliaro, 2006).

Although it is the responsibility of the nurse to identify AUDs through screening, and to prevent and manage AWS through the use of medical treatments; nurses are not always equipped to handle patients who consume excessive amount of alcohol (Cunningham & Puskar, 2007; Kip et al., 2008). Due to the required complex and intricate care these patients must receive, it is exceptionally difficult for nurses to manage AWS if they do not have the appropriate knowledge

and resources needed to aid them (Berl et al., 2015; Freeman, Roche, Williamson, & Pidd, 2011). To address this issue at St. Clare's Mercy Hospital (SCMH) and to better assist nurses in this undertaking, the focus of this practicum was to design a tool kit to meet the specific needs of surgical nurses in this setting.

Background

Alcohol use is not always considered a problem, rather alcohol is only dangerous when it is consumed in excessive amounts. People who consume excessive amounts of alcohol are at risk for a variety of immediate, short-term, and long-term effects, depending on how much and how frequently alcohol is consumed (PHAC, 2015). In fact, in 2015-2016, 3.1 million legally aged Canadians consumed enough alcohol to be at immediate risk for injury or harm, while 4.4 million people consumed enough to be at risk for chronic health effects, such as liver cirrhosis or various forms of cancer (PHAC, 2015). This accounted for over 77, 000 hospitalizations caused entirely by alcohol use (PHAC, 2015).

More specifically, Newfoundland and Labrador (NL) has the one of the highest rates of excessive alcohol consumption in Canada, with approximately 3 in every 10 people engaging in harmful drinking patterns. Furthermore, the population of NL is more likely to exceed Canada's low risk drinking guidelines, with approximately 25% of the entire population being at risk for long-term impacts of alcohol use (Eastern Health 2012; Statistics Canada, 2013).

To help determine who is at risk for the negative consequences associated with alcohol use, alcohol consumption patterns are classified based on the number of standardized drinks a person consumes over defined periods of time (National Institute on Alcohol Abuse and Alcoholism [NIAAA], 2017). People with AUDs consume excessive amounts of alcohol that cause long-term consequences. AUDs incorporate a number of different alcohol consumption

patterns, such as harmful/hazardous drinking and alcohol dependency (Kip et al., 2008). Harmful or hazardous drinking is alcohol consumption that is excessive and dangerous to both a person's physical or mental health, but is not classified as a dependence, while alcohol dependence is the most severe form or AUDs (Centre of Disease Control [CDC], 2018). It involves a craving, tolerance, and preoccupation with alcohol. People who are alcohol dependent continue to drink although they are aware of the harmful consequences. Alcohol becomes a central component in the person's life, as they become more physically dependent on its consumption (Kip et al., 2008).

When a person's drinking is classified as an AUD they are at risk for AWS and significant long-term complications. AWS is among one of the most feared complications related to excessive alcohol use, and can be fatal if not identified early and managed aggressively (Cunningham & Puskar, 2007). AWS is a clinical diagnosis resulting from AUDs and the cessation or significant reduction in alcohol intake after prolonged use (American Psychiatric Association, 2013). It consists of a variety of symptoms, ranging from mild symptoms, which usually occur in the first 24 hours, to moderate and severe symptoms, which eventually lead to delirium tremens (DT; Gordon et al., 2006; Sutton & Jutel, 2016). Research has indicated that rates of AWS are high among surgical patients, resulting in significant postoperative complications, such as prolonged hospitalizations, increased intensive care unit (ICU) admissions, increased morbidity, and increased mortality (Genther & Gourin, 2012; Melson, Kane, Mooney, McWilliams, & Horton, 2014).

Although AUDs and AWS are clearly a problem in surgical care, doctors and nurses alike find it challenging to identify them, and even harder to treat them, due to the required self-reporting of individual alcohol use. This lag in the detection of AUDs and AWS amplifies the

problem, which places a greater burden on health care professionals and worsens patient outcomes. Since nurses have the most frequent contact with surgical patients, they have a substantial role when caring for patients experiencing AWS. It is their responsibility to not only identify AUDs and AWS through preoperative screening, but also to manage AWS through early identification and medical treatments (Elliott, Geyer, Lionetti, & Doty, 2013). This type of care can be quite complex, and literature suggests that nurses require additional knowledge and resources to assist them (Berl et al., 2015; Freeman et al., 2011).

To further address this need, this practicum project focused on providing surgical nurses at SCMH in St John's Newfoundland and Labrador with the necessary tools to identify AUDs, as well as to identify, prevent, and manage AWS through the development of an educational tool kit.

Practicum Project

To ensure the tool kit would be of benefit, this practicum project consisted of a number of assessment steps that informed the development of the tool kit, including an integrative literature review (Appendix A) and an environmental scan and key informant consultations (Appendix B).

Rationale

Approximately 10% of all Canadians have experienced alcohol dependence at some point in their lives (PHAC, 2015). With a high rate of AUDs, it is of no surprise that nurses are continuously exposed to AWS in the inpatient hospital setting. It was working as a nursing student at SCMH in General/ Thoracic surgery that I had my first experience with AWS. After graduating and becoming a registered nurse (RN), I continued working in this area, as well as in orthopedic surgery. It was then that I truly experienced the full detrimental effects alcohol withdrawal has on patients, nurses, and the health care system in general.

I have seen how the cessation of heavy and continuous alcohol intake affects patients in a variety of ways in my time in practice. This ranges from patients becoming extremely agitated and confused to patients becoming increasing ill due to the serious side effects of alcohol withdrawal (i.e., requiring special care or ICU admission), significantly complicating their postoperative recovery and increasing their length of stay. AWS and its effects are a common discussion topic among my colleagues. The largest issue found by staff was patient and family members not disclosing their alcohol use until the patient began showing severe AWS, or when they were encouraged by staff to honestly disclose their alcohol use. Another issue commonly noted was novice nurses not understanding the significance of alcohol withdrawal, and not being able to effectively treat patients when referring to the alcohol withdrawal protocol.

When I began thinking of my final practicum project for the Masters of Nursing program, these issues came to mind. After researching the negative incidents associated with alcohol use and withdrawal in Canada and across the world, I decided that this would be my focus, if I received support from the surgical staff at SCMH and my practicum supervisor. A tool kit was considered to be the best instrument for ensuring nurses at SCMH have the opportunity to receive the required education regarding AUDs and AWS, as it incorporates key concepts, definitions, and information on relevant topics in an easily accessible way. This would facilitate an increase in knowledge, improvement of clinical skills, and increase in confidence for nurses who deal with this patient population (Freeman et al., 2011; Tran, Stone, Fernandez, Griffiths, & Johnson, 2009).

SCMH was chosen as the setting for this project for a number of reasons. First, it was chosen because of my familiarity with the hospital, as I have worked there since becoming a RN. Second, SCMH sees a large number of patients who have AUDs, making AWS a large issue

within the facility. Finally, SCMH was chosen because the surgical program is small yet diverse, making it a good area for first implementing this tool kit.

Contact Persons

Throughout the process of the development of this tool kit, two individuals served as the contact persons for SCMH: the manager of General/ Thoracic Surgery, Ms. Melissa Coish, and the Surgical Nursing Educator, Ms. Kelly Quinlan. Both individuals supported the idea of a tool kit to address some of the needs with regards to AWS in surgical patients, and were kept up to date in the development of this resource.

Ethical Approval

To determine if this project should be submitted to the Health Research Ethics Authority (HREA), their screening tool was completed. After the completion of this screening tool, it was determined that this project did not require the involvement of the HREA, as it is not a research project. This screening tool and its results, can be found in Appendix B of this paper, within the environmental scan and informant consultation report.

Tool Kit Development

Purpose

The development of the tool kit was a multistep process that began with an integrative literature review, and expanded to include an environmental scan as well as informant interviews. The main objectives of this practicum were:

- To conduct an integrative literature review to explore the factors that lead to alcohol withdrawal in surgical patients, including ineffective screening, lack of comfort in nursing staff in assessing for AUDs, and a lack of patient education on the effects of alcohol withdrawal.

- To conduct an environmental scan to review existing policies and procedures for identifying, preventing, and managing alcohol withdrawal within Eastern Health and elsewhere to determine what resources are already available and what is missing.
- To conduct informant interviews to assess the perceptions of nurses in the surgical care setting at SCMH to better understand how their specific needs could be met.
- To develop a multifaceted tool kit that nurses could use to educate patients and themselves regarding AUDs and AWS.
- To demonstrate the competences of advanced nursing practice as outlined by the Canadian Nurses Association (2008).

Integrated Literature Review

Methods. The initial step in the practicum was to assess the most appropriate ways of identifying, preventing, and managing AWS in surgical patients. This was done through the conduction of an integrative literature review. The review took place over a 1-month period, using a variety of search engines, including PubMed, CINAHL, Google Scholar, and Medline. The review focused on qualitative and quantitative research less than 10 years old. The articles reviewed concentrated on research in acute care, such as patients in surgical or medical inpatient settings, and included research where the participants were greater than 19 years of age. Only articles written in English were included, and articles were excluded if they focused on illicit drug or nicotine abuse/dependency, or elderly patients with delirium/dementia.

Although qualitative and qualitative research was reviewed, there were no qualitative studies that met the inclusion criteria. Therefore, the PHAC Critical Appraisal Tool Kit (2014) was used to critique all of the studies included in this review. Literature summary tables were then completed on the most applicable studies, and these can be found within the literature

review included in Appendix A. The results of the literature review were used to inform the development of the tool kit, as the review highlighted a number of topics to include in the nursing educational material.

Results - emerging themes. A total of 22 articles were retrieved and included in the final review, with 16 of the studies focusing on addressing the methods of identifying and preventing alcohol withdrawal, five covering the benefits of increased knowledge of AUDs, AWS, and alcohol withdrawal protocols (AWPs), and one discussing the cessation of alcohol as a means of prevention. Other topics integrated throughout the literature included discussing different methods for benzodiazepine administration, different designs for AWPs, as well as the need for thiamine in the treatment of AUDs.

Two major themes emerged throughout the analysis of the literature. The first was the identification of AUDs to prevent AWS and the second was the management of AWS. Each of the two major themes was then further broken down into two minor themes, that were discussed in detail within the review. The first theme, the identification of AUDs to prevent AWS, included the minor themes education to influence change in practice and the use of proper screening techniques. Results of this section of the literature review suggest that the early and accurate identification of AUDs by health care professionals is the best means of preventing severe AWS in surgical patients (Cunningham & Puskar, 2007; Gili-Miner et al., 2014; Kip et al., 2008). In order to achieve early identification, nurses must be well educated with AUDs and AWS specific knowledge, and they must use accurate standardized screening techniques at the point of entry for surgical patients (Berl et al., 2015; Freeman et al., 2011; Tran et al., 2009; Tsai et al., 2011). With additional education on AUDs and AWS, nurses demonstrated a higher level of alcohol-related knowledge, and were better able to care for patients experiencing AWS.

Preoperative screening was another essential intervention needed for the successful identification, prevention, and management of AWS found throughout the literature. A large number of studies found placed great importance on the use of standardized questionnaires for detecting AUDs prior to surgery. The two most popular tools mentioned throughout the literature include the CAGE and AUDIT questionnaires. The CAGE questionnaire was the most frequently used screening tool for identifying AUD. It is a set of four questions to determine if the patient suffers from alcohol dependency, and is frequently used due to its easy administration and time friendly design (Bradley et al., 2007). The AUDIT tool is a longer screening method and is an assessment of the quantity, frequency, and binge behaviors associated with risky drinking. It has been shown to be a valid and sensitive tool for the identification of at risk drinking and AUDs in all adult patients in general hospital settings (Mueller, Schumacher, Wetzlmair, & Pallauf, 2016).

Although all authors agreed that standardized questionnaires were fundamental, there was discourse regarding which screening tool is best for inpatient care. Overall, in this review the findings suggest the AUDIT tool to be superior to other common screening tools, including the CAGE questionnaire that is currently used by Eastern Health (Matar et al., 2017; Meneses-Gaya, Zuardi, Loureiro, & Crippa, 2009; Mueller et al., 2016).

The second major theme, the management of AWS, was made up of two minor themes, including management through AWPs and management through medication administration. AWPs are standardized tools that contain guidelines to instruct nursing staff on how to treat alcohol withdrawal, through a combination of medical treatments (e.g., appropriate patient observation intervals, blood work monitoring, and outlined roles of the nurse) and pharmacological symptom control for optimal care (Duby, Berry, Ghayyem, Wilson, & Cocancour, 2014). These types of protocols existed throughout literature, and results showed a

positive correlation between protocol use and increased nurse compliance in AWS treatment, as they offer a reliable and consistent way to assess the severity of AWS through administering appropriate interventions (Swift, Peers, Jones, & Bronson, 2010).

Finally, the research highlighted a variety of medications that are needed to successfully treat alcohol withdrawal, including benzodiazepines, thiamine, multivitamins, and folic acid. The majority of studies regarding medication treatments, however, compared common medication administration methods, such as symptom triggered dosing and benzodiazepine loading. The findings were inconsistent, with neither method being superior to the other, but with both being effective for the management of alcohol withdrawal. This suggests that as long as patient symptoms were treated with benzodiazepines, it did not matter how they were administered.

Environmental Scan

Prior to the development of the tool kit and to address gaps within the literature, an environmental scan was conducted in two parts to identify if resources, such as tool kits, exist in other settings locally, nationally, and internationally. Part one consisted of contacting representatives in a variety of health authorities, while part two consisted of a comprehensive Internet review to outline what exists in other parts of Canada and throughout the world.

Part one. To begin this process, hospital websites in seven different health authorities were reviewed to see if they contained any information regarding AUDs or AWS. If not, these websites were reviewed for the contact information of a representative from the facility within surgical services. The seven facilities that were included in part one of this scan were selected based on their location and the population size they service, resulting in the inclusion of only large hospitals with inpatient surgical services. The facilities included in this review included one hospital from each of the major health authorities in Newfoundland and Labrador (i.e., Eastern

Health, Center Health, Western Health, and Labrador Grenfell Health), and one hospital from each of the other Atlantic Provinces (i.e., Nova Scotia Health, New Brunswick Horizon Health Network, and Health Prince Edward Island).

To initiate this process, an email request was sent to each representative asking for a copy of any AWP used by their facility, as well as any policies or educational material that they had to address the issue of AUDs and AWS in their setting. At this time, permission to use this copyrighted material in the development of the tool kit was requested, as was permission to use the information obtained in the tool kit.

The results of part one of the environmental scan were limited, with only two responses from health authorities outside of Eastern Health. Eastern Health's AWP was the first to be reviewed. This protocol included procedures that employees should use as a means to both screen for AUDs and manage AWS in all inpatient settings (e.g., medicine, surgery, mental health, emergency departments [ER]). Eastern Health endorses the CAGE Questionnaire for screening, and states that it is the responsibility of nurses at the point of entry to care (i.e., the nurse who first sees the patient) to administer the tool to all patients over the age of 19. Additionally, this policy states that the CIWA-Ar (i.e., a method of symptom triggered benzodiazepine treatment) should be initiated with a positive CAGE score to manage AWS and its associated symptoms. The policy also included a number of other interventions for nurses and physicians to engage in, such as routine patient observations and vital sign monitoring. There are no current educational resources for patients or nurses used by Eastern Health describing AUDs or AWS.

A representative from Western Health also responded to the request, and stated they did not have an AWP; however, the CAGE and CIWA-Ar are used in identifying and managing

AUDs and AWS, similarly to Eastern Health. The final hospital to respond was the Queen Elizabeth Hospital in PEI, who forwarded their policy and educational material for patients. Their documents advise no alcohol consumption for 24 hours pre- and post-surgery for all surgical patients. Nurses in this facility do not use a formal screening tool, but incorporate AUDs screening into their detailed nursing history.

Part two. In part two of the environmental scan, an Internet search was conducted using the search engine Google to determine if there were any pre-existing AWS tool kits and education resources for both nurses and patient. The search focused on reputable Canadian and international facilities, and excluded any material that also focused on drug abuse in conjunction with alcohol use. Resources were reviewed for common or recurring educational themes, to help determine which information was best to include in the development of the tool kit for surgical patients at SCMH.

Four tools were found during this time: two from Canada (i.e., CAMH, 2016; St. Joseph's Health Care Centre, 2009) and two from the United Kingdom (i.e., the Royal College of Emergency Medicine, 2015; Dudley and Walsall Mental Health Partnership, 2015). Of the four tool kits reviewed, the Centre for Addiction and Mental Health (2016) was found to have the most informative overview of AUDs and AWS. However, all tool kits focused on similar themes, and included both nursing and patient educational material, such as: defining different types of alcohol abuse (e.g., low risk, high risk, dependency); defining a standard drink and what classified as risk for AWS; discussing the consequences of drinking; describing the screening tools used by different facilities; describing ways to recognize AUDs and AWS; describing how to take an appropriate drinking history; discussing strategies for encouraging open communication when it seems a patient may not be truthful regarding their drinking; describing

clinical features of alcohol withdrawal; discussing the management of AUDs and AWS with medications, and other nursing interventions; and finally discussing resources in the area for professionals as well as patients and their families to utilize when dealing with AUDs. These results were used to outline common topics of education for both nurses and patients.

Informant Consultations

Methods. To ensure the tool kit was designed in a way that best addressed the needs of nurses at SCMH, informant consultations were conducted over a 3-week period. This was done with the approval and assistance of the manager of General/Thoracic surgery (Unit 6 East) at SCMH through a variety of semi-structured interviews. Nurses on the unit were made aware of this project, and were asked to express their interest in participation through verbal communication. A variety of health care professionals were interviewed at this time including: four surgical nurses (i.e., two senior staff with > 3 years experience and two junior staff with < than 3 years experience); a surgical nurse manager; a surgical nurse educator; an ER nurse; and a surgical resident. Attempts were also made to interview a preoperative nurse as well as a medical doctor who specializes in AWS.

Each interview was conducted in a one-on-one, private setting of the participants' choosing, or over the phone if this was more convenient for the participant. A broad set of questions were created to help guide the interviews, however, there was also room for open discussion. This technique allowed for some control over the interview, but also permitted a further exploration of topics and relationship building with participants (Al-Busaidi, 2008; Streubert & Carpenter, 2011). Notes were taken throughout the interview, and additional time was allotted at the end of each interview for more detailed note taking. The notes were then

typed, and saved on a personal computer with password protection. The handwritten notes were destroyed. No personal identifiers were included within the note taking.

After the interview process was completed, the notes were read and re-read to identify common themes identified by health care professionals at SCMH. The perspectives and feedback given during this time was directly incorporated into the development of the tool kit, as the information obtained allowed for the tool kit design to fit specifically within the needs that were outlined by the staff for both themselves and their patients.

Results. The results from the consultations mirrored the results from the integrative literature review. It was obvious throughout the interview process that nurses, managers, educators, and physicians alike thought there should be additional education for health care professionals and patients regarding AUDs and AWS. Common topics for addition education that were identified included:

- Educational material designed for patients and their families prior to surgery that included information on: the significance of AUDs and AWS; how much consumption of alcohol places you at risk for AWS; the signs and symptoms of AWS; the side effects or complications of AWS; the potential outcomes of AWS if Eastern Health's AWP is not followed; what patients experiencing AWS can expect (e.g., restraints and intravenous [IV] medications); and how to manage AUDs on discharge.
- Nurses at SCMH believed this education would most useful in the form of a pamphlet or handout, with educational posters placed in the surgical preoperative and postoperative settings to encourage their utilization.
- Nursing education was needed on: how to score patients using the CIWA-Ar; when and how to use the CAGE questionnaire; symptoms of AUDs and AWS; common

medications used in the treatment of AWS; and what can happen to patients undergoing AWS (e.g., postoperative complications, aggression, violence towards nurses, and need for constant care).

Additionally, nurses thought the burden of AWS could be reduced further through: the development of this tool kit; the revision of the AWP; education on AUDs and AWS in the surgical nursing orientation; replacement of the CAGE questionnaire to something more sensitive for screening for harmful/ hazardous drinking; more focus on AWS prevention in the preoperative stage; and patient education prior to discharge on methods to recovery.

Overview of the Tool Kit

A tool kit was selected as the resource of choice for providing additional education to nurses regarding AUDs and AWS. This was based on the input obtained from the key informants and the literature. Tool kits present a collection of related information and resources that guide the individual through the material (Agency for Healthcare Research and Quality, 2016). These kits are used by many key health organizations, such as the WHO, when providing additional education to nurses and other health care professionals to encourage self-directed learning. With the ever-evolving challenges in health, health care professionals must find new ways to address issues in patient care. Self-directed learning enables nurses to cope with these challenges, by providing learning at an individualized pace through a cost-effective means (Rana, Ardichvili, & Polesello, 2016).

Theoretical Basis

Benner's Novice to Expert Model. The development of the tool kit was based on two learning models, with the first being Patricia Benner's Novice to Expert Model. Benner outlined five learner levels that nurses progress though when partaking in new learning, including novice, beginner, competent, proficient, and expert (Benner, 1982). As a novice learner level, a nurse would have no experience in caring for surgical patients with AWS and would lack confidence to demonstrate safe practice. A novice practitioner requires continual verbal and physical cues. A novice in this area would not only include a new nurse, but it could also include a more senior nurse who has had limited experience in caring for patients experiencing AWS.

This tool kit was designed to assists nurses on moving through the learner levels to become more knowledgeable in identifying alcohol use and alcohol withdrawal, and managing AWS. With additional education, in the form of self-directed learning, the nurse can pair experiences in actual situations with the material in the tool kit to become an advanced beginner, who is efficient and skillful in parts of the practice area. With continued learning and practice, the nurse can become a competent practitioner, who is coordinated and confident in their actions, and finally become proficient or even an expert when dedicating more time to learning about AWS. Nurses who are competent and have some experience in caring for these patients can still use this tool kit to become proficient or an expert, as it is designed to include a variety of information that all nurses might not know.

Knowles' Adult Learning Theory. The other learning model used in the creation for this tool kit was Knowles' Adult Learning Theory. Knowles made five assumptions of adult learners. In order to learn, adults must have a self-concept, adult learner experience, readiness to learn, an orientation to learning, and a motivation to learn (Rana et al., 2016). Knowles thought

that adults need to be involved in the planning and evaluation of their education in order to ensure its success. This was something that was integrated throughout the development of the tool kit, through various informant interviews and staff collaborations that took into account the opinions of the staff that this resource was designed for. Through this process, I was able to determine that nurses were ready and motivated to learn more about AUDs and AWS.

To help nurses understand the purpose of the tool kit, an introduction was included prior to the table of contents. The tool kit was divided into sections, this way the new learner could read them in a logical order, or select pertinent parts of the tool kit to review for their own learning purposes. Learners can also read the tool kit at their own pace. There were also sections, such as the case studies, incorporated into the tool kit so learners can build on their previous knowledge in a way that will encourage further learning.

Objectives

The tool kit was designed with to assist surgical nurses at SCMH in identifying AUDs, as well as to assist them in identifying, preventing, and managing AWS in patients. The tool kit was also designed to more specifically:

- Provide additional information for nurses regarding: alcohol; effects and risks of alcohol consumption; types of alcohol consumption; identifying AUDs through symptom recognition and screening processes; AWS; populations at risk; identifying and preventing AWS though recognition of signs and symptoms, patient assessments, and screening; and managing alcohol withdrawal through medical treatments and interventions.
- Inform and guide nurses in their practice when caring for patients who are at risk of AWS, or who are experiencing AWS.
- Assist nurses in correctly using the AWP put in place by Eastern Health.

- Inform other health care professionals who might also be interested in learning more about AUDs and AWS in surgical patients.
- Educate patients on the importance of self-reporting accurate alcohol consumption prior to undergoing surgical procedures, or on admission to hospital.

Tool Kit Content

The tool kit consisted of six sections that outlined the major educational themes as outlined by the literature review, environmental scan, and informant consultations. Each section outlined a specific topic:

- Section One – Background information: Better understanding alcohol and alcohol use focuses on key background information that would be needed by the reader to better understand the information to follow, such as the definition of alcohol, the long-term and short-term effects of excessive alcohol consumption, and the risk associated with alcohol use.
- Section Two – Identifying AUDs, concentrates on types of alcohol use, such as low risk drinking, harmful/ hazardous drinking, and alcohol dependency, as well as how to identify them. It also focuses on the signs and symptoms of AUDs, the tools for identifying them, such as the CAGE and AUDIT questionnaires, and when to use them. Finally, this section describes other things to consider when screening for AUDs, such as open communication strategies.
- Section Three – Identifying AWS, defines alcohol withdrawal, and identifies populations at risk for this disorder, as well as the signs and symptoms that are experienced during alcohol withdrawal. It also outlines the complications of the disorder and the means of preventing and identifying AWS in surgical patients.

- Section Four – Managing AWS, includes information on Eastern Health's AWP and the elements included within the order set, such as the CAGE questionnaire, the CIWA-Ar, and the other standardized orders, such as routine blood work. It also discusses the role of the RN, licensed practical nurse (LPN), and the physician, while also outlining the medications needed for AWS both inside of the AWP and other common medications that may be ordered by physicians outside of the AWP. It also outlines other common treatments for AWS, including IV fluid administration, and application of physical restraints.
- Section Five – Resources for decreasing alcohol use, was specifically designed based on the request of nurses during the informant interviews. At this time, it was noted that many nurses did not know what was available to recommend to patients and family members after their discharge from the hospital to help them recover from their harmful drinking habits. This section outlines resources for both patients and their families, and describes how they can be utilized.
- Finally, Section Six includes 3 case studies that were developed and placed at the end of the tool kit to allow nurses to test their knowledge. Each case study discusses a fictional patient case, and asks five questions covering different material included throughout the tool kit. Answers are then provided at the end of the tool kit so they can see if they were correct.

In addition, the tool kit also included a patient educational handout in the appendix, as well as an education poster that will be used to encourage patients to read the educational handout and inform health care professionals about their alcohol use patterns prior to surgery. The patient educational handout focuses on informing patients about types of alcohol use, ways of knowing

if they have an AUDs or are at risk for AWS, the importance of self-reporting drinking, the postoperative consequences of AWS, methods of treatment, and tips to avoid AWS postoperatively. This handout was developed with the hopes of encouraging open communication between patients and their health care professionals prior to surgery. The tool kit and patient educational material can be seen in full in Appendix C.

Implementation of the Tool Kit

The plan for the implementation of the tool kit at SCMH includes the submission of the tool kit to the manager of 6 East, General / Thoracic Surgery for review. At this time, the tool kit will also be given to two nurses on the unit, who have recently been involved in assessing the problem of alcohol withdrawal on the unit, for their review. These consultants will be given time to read through the tool kit, and recommend any changes or additions to the included material. Then, with the permission of Eastern Health, I plan to make the tool kit available to the rest of nurses on this unit. I will inform the nurses, so they know that the tool kit exists and that it is available for review.

Once the tool kit is successfully implemented on unit 6 East, I plan on working with other surgical managers to make the tool kit available to other surgical floors at SCMH. I also plan on working with the clinical surgery nursing educator to have the tool kit included in the site orientation for novice nurses entering the surgical program.

As previously mentioned, there is also a patient educational pamphlet included in this tool kit, as well as an educational poster to be displayed throughout SCMH. To implement these pieces, I will take similar steps as I did with the implementation of the tool kit. As part of Eastern Health's protocol for the implementation of new patient educational materials, I will submit the pamphlet and poster to Eastern Health for review with the help of my manager and the nursing

educator. If approved, the pamphlet will be made available in the pre- and post-operative settings of SCMH, as well as the ER, and nurses will be educated on where to find them, and who to give them to. Posters will also be displayed in the patient areas of these settings, asking people to take a pamphlet if they or someone they know will be undergoing surgery.

Evaluation of the Tool Kit

Being able to evaluate the tool kit in a measureable way is an important step in determining its success, as well as if it is useful and beneficial for nurses in surgical settings. Kirkpatrick's Evaluation Model will be used to complete an evaluation of the tool kit. This will assess the learner's satisfaction and reaction to the tool kit, the knowledge that is gained from the tool kit, the changes in behavior as a result of the tool kit, and the final results in a large context, such as if patient outcomes are found to improve (Frye & Hemmer, 2012).

This assessment will be done first through pre- and post-implementation surveys to determine what is known regarding AUDs and AWS, and what was learned. The pre-implementation survey will be a brief assessment to determine surgical nurses' knowledge on alcohol withdrawal. Surveys will then be redistributed to once again test nurses' knowledge 6 months after the implementation of the tool kit. At this time, nurses will also be asked about their satisfaction with the tool kit to determine if they found it useful. A section will also be included to ask if they think anything should be adjusted or changed within the tool kit.

Additionally, the tool kit will be evaluated through another means. The manager of 6 East has also taken a great interest in reducing the burden of alcohol withdrawal on the unit, and has arranged a small task force to try and tackle this issue further. I will collaborate with the task force as they complete chart reviews and determine the effectiveness of Eastern Health's current AWP and screening methods. Through chart review, the team plans on assessing if nurses are

effectively screening for AUDs and identifying them early. It is one of the goals of this task force to assess if the implementation of this tool kit will encourage better screening and AWS management from nurses in this setting.

Advanced Nursing Competencies

Throughout this practicum, it was a main objective to meet the advanced nursing practice competencies as outlined by the Canadian Nurses Association (2008). Advanced nursing competencies incorporate a variety of enhanced skills and knowledge that are developed through graduate level education. Competencies are classified as clinical competence, research, leadership and consultation and collaboration.

I believe I have accomplished many of these core competencies throughout this practicum project. One of the duties of advanced nursing practice is to assess the health needs of various populations, and to determine issues and challenges that exist within patient care in their area of work. I have done this through the completion of the literature review, but also through holding meetings with other health care professionals to better understand their perspectives and experiences within practice. I used clinical competence to develop all of the components this tool kit, but it was particularly useful when developing the case studies included in the tool kit to test the nurses' knowledge.

Research was also utilized throughout the entire process. I had to read and critique a variety of articles, ensuring the research was valid and strong, before including it in my tool kit design. This process also assisted in developing my leadership skills, through providing me with additional confidence that this type of learning provides. Finally, consultation and collaboration were especially important, as I communicated with various health care professionals throughout the development of the tool kit, as well as with my professor and supervisor.

Conclusions

All of the key objectives of this practicum project were met throughout the duration of this program. That is, an integrative literature review, environmental scan, and informant consultations were completed. They were then used to inform the development of the tool kit to assist surgical nurses in identifying, preventing, and managing AWS, as well as patient educational materials to be used in preoperative and postoperative settings. Through the completion of these goals, I believe that I have become a more competent and knowledgeable practitioner, and I have developed the required skills for advanced nursing practice, especially in the areas of consultation and collaboration. This report has outlined the background and rationale for this practicum, as well as an overview of the practicum methods and results. The report also goes into detail on the plan for future implementation and evaluation of the tool kit.

To provide better care to patients with AUDs experiencing AWS, nurses need enhanced education on AUDs and AWS. This will assist them to identify alcohol use earlier, and to more efficiently manage AWS after surgical procedures to improve patient outcomes. It is my hope that through the utilization of this tool kit, nurses will accomplish this, and reduce the burden AWS has at SCMH.

References

Agency for Healthcare Research and Quality (AHRQ). (2016). *AHRQ publishing and communications guidelines. Section 6: Toolkit guidelines.* Retrieved from: https://www.ahrq.gov/research/publications/pubcomguide/pcguide6.html

Al-Busaidi, Z. Q. (2008). Qualitative research and its uses in health care. *Sultan Qaboos University Medical Journal*, *8*(1), 11–19. Retrieved from: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3087733/

American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders DSM-5* (5th ed.). Arlington, VA: Author.

Benner, P. (1982). From novice to expert. *The American Journal of Nursing, 82*(3), 402-407. Retrieved from: https://journals.lww.com/ajnonline/Citation/1982/82030/From_Novice_To_Expert.4.aspx

Berl, K. L., Collins, M., Melson, J., Mooney, R., Muffley, C., & Wright-Glover, A. (2015). Improving nursing knowledge of alcohol withdrawal: Second generation education strategies. *Journal for Nurses in Professional Development, 31*(6), 328-332. doi: 10.1097/NND.0000000000000176.

Bradley, K. A., DeBenedetti, A. F., Volk, R. J., Williams, E. C., Frank, D., & Kivlahan, D. R. (2007). AUDIT-C as a brief screen for alcohol misuse in primary care. *Alcoholism, Clinical and Experimental Research*, *31*(7), 1208-1217. doi: 10.1111/j.1530-0277.2007.00403.x

Canadian Nurses Association. (2008). *Advanced nursing practice: A national framework.* Retrieved from: https://www.cna-aiic.ca/~/media/cna/page-content/pdf-en/anp_national_framework_e.pdf

Centre for Addiction and Mental Health. (2011). Low risk drinking guidelines. Retrieved from: http://www.camh.ca/en/hospital/health_information/a_z_mental_health_and_addiction_information/alcohol/Pages/low_risk_drinking_guidelines.aspx

Centre for Addiction and Mental Health. (2016). *Primary care addiction tool kit. Dealing with alcohol problems.* Retrieved from https://www.porticonetwork.ca/web/alcohol-toolkit/treatment/alcohol-withdrawal

Centre for Disease Control. (2018). *Alcohol and public health. Fact sheets – Alcohol use and your health.* Retrieved from https://www.cdc.gov/alcohol/fact-sheets/alcohol-use.htm

Cunningham, L., & Puskar, K. (2007). Nursing implications of alcohol withdrawal in the postoperative orthopaedic patient. *Journal of Orthopaedic Nursing, 11*(2), 91-97. doi: dx.doi.org/10.1016/j.joon.2007.02.006

Duby, J., Berry, A., Ghayyem, P., Wilson, M., & Cocanour, C. (2014). Alcohol withdrawal syndrome in critically ill patients: Protocolized versus nonprotocolized management. *The Journal of Trauma and Acute Care Surgery, 77*(6), 938-43. doi: 10.1097/TA.0000000000000352.

Dudley and Walsall Mental Health Partnership. (2015). *Management of alcohol withdrawal guidelines.* Retrieved from http://www.dudleyformulary.nhs.uk/download/471/-alcohol-withdrawal-management-guidelines.

Eastern Health. (2012). *Reducing substance use risks and harms summary.* Retrieved from www.easternhealth.ca/DownFile.Aspx?fileid=207

Elliott, D. Y., Geyer, C., Lionetti, T., & Doty, L. (2013). Managing alcohol withdrawal in

hospitalized patients. *Nursing Critical Care 2013*, *42*(4), 22-30. Retrieved from http://clinicaleffectiveness.uchicago.edu/files/2013/05/managing-alcohol-withdrawal-Elliott.pdf

Freeman, T., Roche, A., Williamson, P., & Pidd, K. (2011). Hazardous alcohol use interventions with emergency patients: Self-reported practices of nurses, and predictors of behaviour. *Emergency Medicine Australasia, 23*(4), 479-489. doi: 10.1111/j.1742-6723.2011.01416.x.

Frye, A. W., & Hemmer, P. A. (2012). Program evaluation models and related theories: AMEE guide no. 67. *Medical Teacher*, *34*(5), e288-e299. doi: 10.3109/0142159X.2012.668637

Genther, D., & Gourin, C. (2012). The effect of alcohol abuse and alcohol withdrawal on short-term outcomes and cost of care after head and neck cancer surgery. *Laryngoscope, 122*(8), 1739-1747. doi:10.1002/lary.23348

Gili-Miner, M., Béjar-Prado, L., Gili-Ortiz, E., Ramírez-Ramírez, G., López-Méndez, J., López-Millán, J. M., & Sharp. B. (2014). Alcohol use disorders among surgical patients: Unplanned 30-days readmissions, length of hospital stay, excessive costs and mortality. *Drug and Alcohol Dependence, 137,* 55-61. doi: 10.1016/j.drugalcdep.2014.01.009

Gordon, A., Olstein, J., & Conigliaro, J. (2006). Identification and treatment of alcohol use disorders in the perioperative period. *Postgraduate Medicine*, *119*(2), 46-55. doi: 10.3810/pgm.2006.07.1743

Kip, M., Neumann, T., Jugel, C., Kleinwaechter, R., Weiss-Gerlach, E., Guill, M., & Spies, C. (2008). New strategies to detect alcohol use disorders in the preoperative assessment clinic of a German university hospital. *Anesthesiology*, 171-179. doi: 10.1097/ALN.0b013e31817f5be3

Matar, M. M., Jewett, B., Fakhry, S. M., Wilson, D. A., Ferguson, P. L., Anton, R. F., & Sakran, J. V. (2017). Identifying chronic heavy alcohol use in emergency general surgery patients: A pilot study. *Trauma Surgery & Acute Care Open*, *2*(1), e000098. doi: 10.1136/tsaco-2017-000098

Melson, J., Kane, M., Mooney, R., McWilliams, J., & Horton, T. (2014). Improving alcohol withdrawal outcomes in acute care. *The Permanente Journal, 18*(2), E141-5. doi: 10.7812/TPP/13-099.

Meneses-Gaya, C., Zuardi, A. W., Loureiro, S. R., & Crippa, J. S. (2009). Alcohol Use Disorders Identification Test (AUDIT): An updated systematic review of psychometric properties. *Psychology & Neuroscience, 2*(1), 83-97. doi:10.3922/j.psns.2009.1.12

Mueller, G., Schumacher, P., Wetzlmair, J., & Pallauf, M. (2016). Screening questionnaires to identify problem drinking in the primary care setting: A systematic review. *Journal of Public Health, 24*(1), 9-19. doi: 0.1007/s10389-015-0694-3

National Institute on Alcohol Abuse and Alcoholism. (2017). *Overview of alcohol consumption: Drinking levels defined.* Retrieved from: https://www.niaaa.nih.gov/alcohol-health/overview-alcohol-consumption/moderate-binge-drinking

Public Health Agency of Canada. (2014). *Critical appraisal tool kit.* Retrieved from http://publications.gc.ca/collections/collection_2014/aspc-phac/HP40-119-2014-eng.pdf

Public Health Agency of Canada. (2015). *The Chief Public Health Officer's report on the state of public health in Canada, 2015: Alcohol consumption in Canada.* Retrieved from http://healthycanadians.gc.ca/publications/department-ministere/state-public-health-alcohol-2015-etat-sante-publique-alcool/alt/state-phac-alcohol-2015-etat-aspc-alcool-eng.pdf

Rana, S., Ardichvili, A., & Polesello, D. (2016). Promoting self-directed learning in a learning organization: tools and practices. *European Journal of Training and Development*, *40*(7), 470-489. Retrieved from: https://doi-org.qe2a-proxy.mun.ca/10.1108/EJTD-10-2015-0076

Royal College of Emergency Medicine. (2015). *Alcohol: A tool kit for improving care.* Retrieved from https://www.rcem.ac.uk/docs/College%20Guidelines/5z24.%20Alcohol%20toolkit%20(June%202015).pdf

Statistics Canada. (2013). *Heavy drinking, 2013.* Retrieved from: https://www.statcan.gc.ca/pub/82-625-x/2014001/article/14019-eng.htm

St. Joseph's Health Care Centre. (2009). *Addiction toolkit: Dealing with alcohol problems.* Retrieved from https://www.researchgate.net/file.PostFileLoader.html?id=55496108d11b8b411d8b458a&assetKey=AS%3A273771242426372%401442283558203.

Streubert, H. J., & Carpenter, D. R. (2011). *Qualitative research in nursing: Advancing the humanistic imperative* (5th ed.). Philadelphia, PA: Lippincott Williams & Wilkins.

Sutton, L. J., & Jutel, A. (2016). Alcohol withdrawal syndrome in critically ill patients: Identification, assessment, and management. *Critical Care Nurse*, *36*(1), 28-39. doi:10.4037/ccn2016420

Swift, R. A., Peers, E. A., Jones, B. L., & Bronson, M. V. (2010). Utilization of a purpose-designed chart for the nursing management of acute alcohol withdrawal in the hospital setting. *Australasian Emergency Nursing Journal*, *13*(3), 70-77. doi: 10.1016/j.aenj.2010.04.001

Tran, D. T., Stone, A. M., Fernandez, R. S., Griffiths, R. D., & Johnson, M. (2009). Changes in general nurses' knowledge of alcohol and substance use and misuse after education. *Perspectives in Psychiatric Care, 45*(2), 128-139. doi: 10.1111/j.1744-6163.2009.00213.x

Tsai, Y. F., Tsai, M. C., Lin, Y. P., Weng, C. E., Chou, Y. L., & Chen, C. Y. (2011). An alcohol training program improves Chinese nurses' knowledge, self-efficacy, and practice: A randomized controlled trial. *Alcoholism: Clinical and Experimental Research, 35*(5), 976-983. doi: 10.1111/j.1530-0277.2010.01428.x

World Health Organization. (2018). *Management of substance abuse. Global strategy to reduce harmful use of alcohol*. Retrieved from http://www.who.int/substance_abuse/activities/gsrhua/en/

Appendix A: Integrative Literature Review

Reducing Alcohol Withdrawal in Surgical Patients through Identification, Prevention, and Management: An Integrative Literature Review

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Through the recent focus on alcohol-related illness and its effects on the health care system by the Canadian government, and the increased incidents noted by hospital staff, nurses are becoming more aware of the problems that exist due to excessive drinking in the Canadian patient population (Canadian Institute for Health Information, 2017). Risky alcohol consumption and alcohol use disorders (AUD) are accompanied by not only negative individualized and global financial effects, but also by a wide range of negative societal impacts (e.g., increased rates of premature death, disability and disease, impaired driving, violent crimes, abuse, injury, reduced productivity, and a burdened health care system) that creates a magnitude of plights for the general population and the health care system (Public Health Agency of Canada [PHAC], 2015).

Many factors influence how alcohol affects a person's health, including how much and how often alcohol is consumed, the person's individualized risk factors, and the activities they partake in while drinking (Government of Canada, 2013). Although the entire health care system is burdened by AUD, the problem is often intensified when patients undergo surgical procedures. As a result, surgical health care professionals are faced with the complex task of caring for patients who are experiencing surgical recovery, and who are also going through alcohol withdrawal syndrome (AWS) as a result of undisclosed excessive drinking. With the incidence of AUD being highest among surgical patients, there is an increased need for focus on the early identification of AUD in this setting (Gordon, Olstein, & Conigliaro, 2006).

Once identified, AUD can be effectively managed to reduce the incidence of AWS and prevent further post-operative complications, however, people with AUD and AWS are not always obviously recognizable. More often than not, patients with AUD deny they have a problem or underreport the amount they drink due to embarrassment and a lack of understanding

of how dangerous alcohol misuse can be (Jane, 2010). Although AUD have been confirmed to lead to considerable health consequences (e.g., postoperative complications), the rate of diagnosis remains unsatisfactorily low (Cunningham & Puskar, 2007; Kip et al., 2008). By being able to effectively identify, prevent, and manage AWS in surgical patients (i.e., any patient undergoing any surgery) through screening procedures, health care professionals can help to reduce associated mortality and morbidity in patients with AUD.

After speaking with health care professionals on surgical floors in St. Clare's Mercy Hospital (SCMH), St. John's, Newfoundland, it was apparent that alcohol withdrawal is a sizeable problem for both surgical patients and staff. This integrative literature review will focus on research that pinpoints ways to effectively identify, prevent, and manage alcohol withdrawal in surgical patients from a nursing standpoint. This review will demonstrate that although extensive research exists in this area of AWS, methods to reduce the incidence and the burden of AWS on the health care system are not being effectively translated into evidence-based nursing practice. Through the utilization of this research, my intention will be to develop an educational tool kit to teach nurses about the proper identification and management of AWS through alcohol withdrawal protocols (AWP) in the surgical settings at SCMH.

Background Information

Alcohol abuse in Canada has a substantial impact on the general population, as well as the health care system. In 2012, excessive alcohol use was the leading cause of hospitalization in the country, costing the health care system an average of $3.3 billion dollars annually (Canadian Centre on Substance Abuse, 2012; PHAC, 2015). Furthermore, research suggests that Newfoundland and Labrador has the highest rates of excessive alcohol consumption, with 35% of the population engaging in harmful drinking patterns (Eastern Health, 2012; Statistics Canada,

2013). Chronic alcohol use contributes to a variety of immediate, short-term, and long-term effects on health, well-being, and behavior, that are dependent on how much alcohol a person consumes (PHAC, 2015). AUD is a broad definition used to describe mild, moderate, and severe alcohol use in patients, which incorporates alcohol dependency (i.e., the craving, tolerance, and preoccupation with alcohol, as well as continued drinking despite harmful consequences) and harmful alcohol use or excessive drinking (Kip et al., 2008).

Additional issues exist when caring for hospitalized patients with AUD, as they are exposed to significant health problems through the increased risk of developing AWS. AWS is a clinical diagnosis resulting from AUD, consisting of a variety of symptoms that occur after the cessation or reduction in alcohol after prolonged use (American Psychiatric Association, 2013). Symptoms range from mild (i.e., tremor, anxiety, diaphoresis, tachycardia, and sleep disturbances), which usually occur in the first 24 hours, to moderate and severe (i.e., fever, confusion, clouding of the sensorium, hallucinations, aggression, blackouts, agitation, and seizures), eventually leading to delirium tremens (DT; Gordon et al., 2006; Sutton & Jutel, 2016). DT occurs in 10% of patients and typically develops 3 to 5 days after the onset of AWS. It is characterized by an elevated temperature, tachycardia, hypertension, tremulousness, fluctuations in levels of consciousness, hallucinations, disorientation, and urinary incontinence (Gordon et al., 2006; Sutton & Jutel, 2016).

If left untreated, as many as 66%-82% of patients with AUD will develop AWS when admitted to hospital, due to the interruption of alcohol consumption (Genther & Gourin, 2012; Melson, Kane, Mooney, McWilliams, & Horton, 2014). Research has shown the incidence of AUD is highest among patients under surgical care, resulting in a significant risk factor for increased postoperative complications, morbidity, and mortality (Genther & Gourin, 2012;

Gordon et al., 2006). AWS can lead to detrimental effects in patients who are already at risk of a prolonged recovery process, such as prolonged hospital stays, increased intensive care unit (ICU) admissions, and patient rehospitalizations due to increased rates of self-harm, infection, hemostatic imbalance, and cardiopulmonary dysfunction (Kip et al., 2008). This also affects the health care system and staff through the increased costs of care for patients and staff injury associated with patient AWS symptoms, such as violent outbreaks, agitation, aggression, and confusion (Berl et al., 2015).

Although AUD and AWS are clearly a problem in surgical care, doctors and nurses alike find it challenging to identify them, and even harder to treat them. Research on this topic has continuously concluded that the best way to reduce AWS is through prevention and early management (Cunningham & Puskar, 2007). Since an early diagnosis of AUD is determined through patients' self-reported medical history, oftentimes as previously mentioned, patients understate the amount of alcohol they consume, resulting in a missed diagnosis. Consequently, screening though preexisting questionnaires, such as the Cut-down, Annoyed, Guilt, Eye-opener (CAGE) questionnaire (Mayfield, McLeod, & Hall, 1974) or the Alcohol Use Disorders Identification Test (AUDIT; World Health Organization, 2001), is the best way to sensitively identify AUD in the patient population (Meneses-Gaya, Zuardo, Loureiro, & Crippa, 2009).

Once identified, nurses can then advocate for physicians to initiate an AWP, which includes a standardized set of bloodwork, medications, and orders that allow nurses to monitor and treat for alcohol withdrawal symptoms. Currently, within SCMH and Eastern Health, the largest health authority in Newfoundland and Labrador, the AWP incorporates screening for AUD, through the use of the CAGE questionnaire, and medicated and non-medicated treatment requirements (See Appendix A). One piece of the AWP that research has shown to be effective is

the revised version of the symptom-based assessment tool called the Clinical Institute Withdrawal Assessment for Alcohol (CIWA-Ar). The CIWA-Ar assists nurses to measure the level of alcohol withdrawal symptoms (i.e., nausea and vomiting, tremor, paroxysmal sweats, anxiety, agitation, tactile disturbances, auditory disturbances, visual disturbances, headache, and orientation and clouding of sensorium), to determine the appropriate dosing of benzodiazepines needed for symptom control (Berl et al., 2015; Leuenberger, Fierz, Hinck, Bodmer, & Hasemann, 2017). Although this tool is relatively uncomplicated, it does require instruction and a level of familiarity to use it effectively. Other treatments included within this AWP are the administration of thiamine, folic acid, and multivitamins, as well as standardized blood work and specialized surveillance (i.e., standard observation of the patient once per hour, close observation every 15-30 minutes, or constant observation).

Often in the surgical process, patients must meet with multiple physicians, surgeons, an anesthesiologist, and nurses (i.e., emergency room, preoperative, operative, and post-surgical nurses) to prepare for the process, and yet the diagnosis for AUD is repeatedly missed at all levels of care (Kip et al., 2008). Health care professionals frequently feel uncomfortable asking patients about their alcohol use, and even after the diagnosis of AWS is made, many nurses feel that the care of patients experiencing AWS is extremely difficult to manage, and requires increased resources and education (Berl et al., 2015). Nurses also tend to feel uncomfortable administering the required doses of benzodiazepines for symptom control (Berl et al., 2015). In consideration of the foregoing information, a need exists for more nursing education, better AWS screening, and management in surgical care to improve patient outcomes, and quality of nursing work life.

Search Methods

To determine the most appropriate ways of identifying, preventing, and managing AWS in surgical patients, an integrative literature search was conducted using PubMed, CINAHL, Google Scholar, and MEDLINE. The search took place from September to October of 2017, and included articles less than ten years old (i.e., from 2007-2017). Inclusion and exclusion criteria were developed to help shape the search, and focused on articles in acute care (e.g., patients on surgical, medical or intensive care floors or patients assessed in the emergency room), including participants greater than 19 years of age (i.e., both men and women), that were written in English. Articles were excluded if they focused on illicit drug or nicotine abuse/dependency, or elderly patients with delirium/dementia. Grey literature (e.g., option pieces, literature commentaries) were not included in this review, rather the search focused on quantitative and qualitative studies, and systematic reviews.

The literature review was designed to answer: “How can nurses identify and prevent alcohol withdrawal?”; “Why is early identification and management important?”; “How can nurses effectively manage alcohol withdrawal?”; and “What techniques and tools are best for identifying, preventing, and managing alcohol withdrawal in surgical patients?”. The search began using PubMed, and concentrated on terms such as: “alcohol withdrawal”; “prevention”; “identification”; “alcohol dependence”; “surgery”; “nursing”; “postoperative complication”; “screening”; “treatment”; “alcohol withdrawal protocol”; and grew to include “standardized order set”; “CAGE”; “AUDIT’; “education”; and “perceptions”. Abstracts incorporating the terms were retrieved from PubMed and reviewed for inclusion or exclusion, and if included, the entire article was reviewed. The process was then repeated for CINHAL, Google Scholar, and MEDLINE, respectively.

Overview of the Literature

The search yielded over 6,000 results from all four databases. However, when the criterion of "less than 10 years" was applied, this reduced the amount of literature significantly. The majority of literature available was conducted between the late 1980's and early 2000's, and described the complications associated with AWS (e.g., increased postoperative complications and length of hospital stay), as well as the consequences to the health care system as a whole, rather than methods of reducing AWS and its severity. Although this information was useful for describing the problem, it was not the main focus of the literature review. After applying the inclusion and exclusion criteria further, only 54 articles remained. An additional 34 articles were removed due to their irrelevance on this topic and the inability of the full text to be retrieved, making the final inclusion number 22 studies (See Appendix B for Literature Summary Tables).

Fifteen of these studies addressed methods of identifying and preventing alcohol withdrawal, and seven discussed ways to manage AWS. There was no literature available from the search on the proper way to sensitively ask patients about drinking habits or ways to better educate patients on AWS; however, authors of nine of the articles included did discuss the best tools for AUD screening. Five articles covered the benefits of increased knowledge of AUD, AWS, and AWP as a means of prevention, with a particular focus on changing perceptions to change practice. Only one article was found where the authors discussed cessation of alcohol as a means of prevention, however, this study was a meta-analysis with a strong research design (Opedal, Moller, Pedersen, & Tonnesen, 2012). With regards to management, three groups of authors discussed different methods for benzodiazepine administration, three discussed different designs for AWPs, and one group of authors discussed the need for thiamine in the treatment of AUD.

The PHAC Critical Appraisal Tool Kit (2014) was used to evaluate the strength and quality of the articles included in this review. Overall, the quality of the research was medium, with the majority of the studies consisting of pre and post retrospective designs. Two strong articles were included in this review, one meta-analysis and one randomized control trial (RCT; Opedal et al., 2012; Tsai et al., 2011), and two studies with weak methodological designs were included, as they were recent descriptive studies, that highlighted a need for further research (Berl et al., 2015; Matar et al., 2017). The included research was classified into the following two major headings, with subheadings to further describe recurring arguments in the literature: (a) Identification of Alcohol Use Disorders and Prevention of Alcohol Withdrawal Syndrome (subheadings "Education to Influence Change in Practice," "Screening Techniques," and "Cessation of Alcohol"); and (b) Management of Alcohol Withdrawal Syndrome (subheadings "Management through Alcohol Withdrawal Protocols" and "Management through Medication").

Identification of Alcohol Use Disorders and Prevention of Alcohol Withdrawal Syndrome

The identification of AUD and the prevention of AWS go hand-in-hand: Research has suggested that early and accurate identification of AUD by health care professionals is the best means of preventing severe AWS symptoms in surgical patients (Cunningham & Puskar, 2007; Gili-Miner et al., 2014; Kip et al., 2008). Effective early identification has been shown to begin in the preoperative period with preparation and patient screening from knowledgeable and well trained health care professionals (Bradley et al., 2007; Tran, Stone, Fernandez, Griffiths, & Johnson, 2009). This section of the review will provide a highlight of included literature on this topic thorough a discussion of results, and a critical appraisal of the work.

Education to Influence Change in Practice

With nurses on the frontline of health care, they are perfectly positioned to identify AUD in the preoperative population. Patients see nurses at a variety of different points in the preoperative journey, whether in the emergency room before admission, in the preoperative clinic, operating room, or on the surgical floor, nurses have a multitude of opportunities to identify AUD before the development of AWS. However as previously stated, research has demonstrated that the rates of identification of AUD and AWS are insufficient in surgical patients, causing numerous postoperative problems (Kip et al., 2008). The main barrier preventing this identification is a lack of knowledge on alcohol withdrawal, screening, and treatments in nursing staff (Berl et al., 2015; Freeman, Roche, Williamson, & Pidd, 2011; Tran et al., 2009; Tsai et al., 2011). This lack of knowledge has contributed to a reduction in screening and low intervention in AWS, resulting in poorer patient outcomes.

Although assessing the knowledge level of AUD in nurses was the not the main objective of their study, Freeman et al. (2011) found through a prospective national survey that greater support and education was needed for emergency room nurses caring for patients with AUD. While exploring perceptions and practices of these nurses, the authors identified that once aware of the low levels of AUD identification, nurses put in more of an effort to assess their patients and had more of a positive attitude towards asking these questions. Taking into account the weaknesses of the study design (e.g., low response rate and convenience sample), the study was still a good source of evidence due to its national sample and anonymous coding. Freeman et al. demonstrated that one third of the nurses had no specific training on AUD, creating a significant obstacle for practice. Similar results were produced by Leuenberger et al. (2017), who conducted a formal evaluation of a newly developed screening and treatment regime for AWS in a Swiss hospital. The results suggested that while nurses are effective at correctly identifying AUD and

AWS, they did not always complete all of the required assessments, suggesting more education is needed for this group.

Through the implementation of additional educational programs on alcohol use, abuse, and withdrawal, three studies examined the relationship between increased education and better AWS screening and care. Tran et al. (2009) observed the education levels of 120 nurses before and after they participated in an educational program based on the management of patients experiencing AWS. Their findings from two tertiary hospitals suggested that nurses who took part in the additional education program demonstrated a significantly higher level of alcohol related knowledge and a better understanding of the treatments for AWS. The survey results, however, still demonstrated that nurses felt they had a lack of knowledge and were not comfortable providing care for patients with AWS (i.e., 79% of with education group), highlighting the need of even more education on the topic.

Another pre-post study by Berl et al. (2015) revealed increased adherence to alcohol withdrawal symptom management guidelines when nurses were provided with additional education on how to correctly use them. While this study consisted of a weak quality due to its limited description of sampling and data analysis, statistical significance was found to suggest that increasing knowledge of AWS improved nurses comfort in caring for these patients, overall improving clinical outcomes. Similar results were found in a stronger study by Tsai et al. (2011). This RTC was used to examine the effects of an alcohol-training program on Taiwanese nurses, which showed that the nurses who participated in the program had significantly higher knowledge at 1 and 3 months post education. Although Tsai et al. identified more research on this topic is needed, they found that nurses in the experimental group reported increasing their practice of assessing, identifying, intervening, transferring, and recording patients' alcohol use

problems. Once again, this study highlighted that more education was needed, specifically on the AUDIT screening tool (Tsai et al., 2011) that will be discussed in the next section of this review.

Screening Techniques

Research has identified that the most proficient means of identifying alcohol abuse in surgical patients is by simply asking them about their alcohol use patterns. A variety of screening techniques have been created for this purpose, with the objective of assisting health care professionals in sensitively and effectively asking these questions. Screening instruments can be administered in the form of an interview, or as a self-administered questionnaire, to characterize at risk drinking or alcohol harmful use (Mueller, Schumacher, Wetzlmair, & Pallauf, 2016). Eight articles in this review explored the different screening tools and their psychometric properties to determine which is best for AUD identification in the general population, while one study explored the creation of a new tool authors believed to be superior to all others.

The most frequently discussed tools in the literature included the AUDIT and CAGE questionnaire. However, a number of studies also addressed tools such as the AUDIT – Consumption (AUDIT-C), Michigan Alcohol Screening Test (MAST), Luebeck Alcohol Dependence and Abuse Screening Test (LAST), Rapid Alcohol Problems Screen 4 (RAPS4), and Brief Alcohol Screening and Intervention for College Students (BASICS) questionnaires for a deeper evaluation (Cremonte et al., 2010; Dhalla & Kopec, 2007; Geneste et al., 2012; Mueller et al., 2015). The AUDIT is an assessment of the quantity, frequency, and binge behaviors associated with risky drinking (See Appendix C), whereas the CAGE protocol asks four questions to determine alcohol dependency (Bradley et al., 2007). Other questionnaires included in this review are a variation of these two tools, and have limited research available on their effectiveness in Canadian populations.

Though the options for AUD screening are endless, all of the study results included in this review demonstrated similar findings. These suggests that the AUDIT questionnaire, or one of its variations (i.e., AUDIT-C), is the most sensitive and reliable method for detecting AUD in the overall population, whether self-administered or conducted in an interview format. CAGE was also thoroughly explored in this review, due to its frequency of use in surgical settings, and quick administration (i.e., <60 seconds).

A study by Meneses-Gaya et al. (2009) was one of three systematic reviews, that compared the AUDIT and CAGE questionnaires to other screening tools over an 8-year period. The results presented through their search confirmed the AUDIT to be superior to both the CAGE and the RAPS4 due to its significantly higher sensitivity and specificity values, high rates of reproducibility, efficiency in screening, and high internal consistency. Its translation into multiple languages (e.g., Chinese, German, Spanish, Swiss, and Vietnamese) also makes it easily adaptable to other cultures and settings. The weakest study included in this review also examined the AUDIT; however, it used prospective cohort observation in patients with AUD to explore the relationship between this screening technique and elevated carbohydrate-deficient transferrin, which is a serum biomarker that acts as an objective screening tool in AUD patients. Due to the elevated levels of carbohydrate-deficient transferrin in patients who consume 50-80g of alcohol a day for at least 7/15 days, it is a valid positive indicator of AUD over a longer period of time (Matar et al., 2017). Although the study by Matar et al. (2017) is of weak design due to its prospective observation, small convenience sample, and low response rate, the study was very recently conducted on a newly explored topic. Therefore, it was important to include it in this review. When viewing carbohydrate-deficient transferrin as a positive marker for AUD, the results found that a relatively high sensitivity and specificity for AUDIT, once again supporting

the use of the AUDIT screening technique. However, more work needs to be done to determine the true value of carbohydrate-deficient transferrin screening in the hospital setting for AUD detection.

A systematic review by Mueller et al. (2016) compared AUDIT with a much larger number of screening methods (i.e., CAGE, MAST, LAST, AUDIT-C, and BASIC), and the results remained the same. AUDIT demonstrated the best outcomes for primary care patients, elderly patients, and patients in general hospitals, with specific excellence in identifying at risk drinking. LAST and MAST had the poorest results in the review, while CAGE and BASIC demonstrated similar effectiveness to the AUDIT, differing by their limited usefulness within certain populations.

CAGE was found to be adequate in validity for detecting AUD in medical, surgical, psychiatric, and inpatients, however it was found to be ineffective for detection in white women, college students, and the elderly (Cremonte et al., 2010; Dhalla & Kopec, 2007; Geneste et al., 2012; Meneses-Gaya et al., 2009; Mueller et al., 2016). Although the majority of articles in this review found CAGE to be moderately effective, when psychometric properties were examined at a large multi-country scale, CAGE was found to be the least sensitive and valid out of both the AUDIT and RASP3 (Cremonte et al., 2010). This contradicts the work of Dhalla and Kopec (2007) and Geneste et al. (2012), whose systematic review and French questionnaire reinforced previous works, finding CAGE to be the most widely used instrument for the detection of AUD due to its high test-retest reliability. These findings suggested, besides its lack of effectiveness in certain populations, CAGE's only weakness is its decreased sensitivity for uncovering at risk drinking (i.e., it only detects alcohol dependency).

Only two studies suggested methods besides AUDIT and CAGE for AUD detection. The first of the two, was a cross-sectional validation study by Bradley et al. (2007) that compared alcohol-screening questionnaires with standardized interviews conducted in an outpatient clinic. These results suggested the AUDIT–C tool (i.e., a shortened version of the AUDIT questionnaire) was superior to both the ADUIT and CAGE questionnaires for identifying risky drinking, but this study was one of a kind. The work of Mueller et al. (2016) does support AUDIT-C as being a viable option for screening, yet more work is needed on the topic before one can assume AUDIT-C is the best choice. The second of these two studies involved a meta-analysis and pilot study that suggested the forfeiture of traditional questionnaires, and called for the development of a new tool called the "Prediction of Alcohol Withdrawal Severity Scale" (PAWSS; Maldonado et al., 2014). Although the study was moderate in quality, there was no comparison done with the CAGE or AUDIT questionnaires to gauge which assessment tool is best. There also needs to be additional research completed on this newly developed questionnaire before it can be used in practice.

Conflicting results were also found when comparing patient self-administered reporting to clinician-performed questionnaires. Bradley et al. (2007) found self-administered reporting to be ineffective, but a study conducted by Kip et al. (2008) found self-reporting to be accurate if the AUDIT tool was used. Kip et al. compared the preoperative anesthesiologist assessment to self-administered computerized screening questionnaires (i.e., AUDIT) and found anesthesiologists were only able to independently (i.e., relying on their own assessment without the use of a questionnaire) detect 17.2% of AUD cases, as detected by AUDIT through self-administration.

Although a debate exists regarding which of these screening methods is the most reliable, valid, and efficient way of identifying AUD in the surgical patient, overall the findings do suggest AUDIT to be superior. This does not mean, however, that other screening tools, such as the CAGE are ineffective, but it does suggest that for the most sensitive results the AUDIT should be used. Even with this substantial amount of research, some nurses still question if screening is the best method of prevention, when patient alcohol cessation would reduce all postoperative complications (Berl et al., 2015).

Cessation of Alcohol

Though the cessation of alcohol consumption may appear to be the best method of preventing alcohol withdrawal, very limited research is conducted on this topic. The meta-analysis by Opedal et al. (2012) was the only article in this review on the topic. This strong study found only two RCTs, after an intensive search, which investigated the effect of preoperative alcohol cessation on the rates of postoperative complications and long-term alcohol consumption in surgical patients. Although the included RCTs had small sample sizes (i.e., a total of 69 from both studies), the meta-analysis revealed with statistical significance that the complete cessation of alcohol reduced the rates of postoperative complications in patients with AUD. However, cessation was found to have no effect on length of stay or mortality. These results also demonstrated a decrease in short-term alcohol consumption postdischarge, but no effect on long-term drinking due to the patients' return to previous drinking habits after surgical recovery. Therefore, the researchers of the study concluded that due to the difficult identification of AUD and the inability of enforced cessation prior to admission, other interventions (i.e., AUD screening and AWPs with pharmacological strategies) would be the most successful means to reduce postoperative complications (Leuenberger et al., 2017; Opedal et al., 2012).

Management of Alcohol Withdrawal Syndrome

While identification of AUD is key in the prevention of detrimental symptoms, the management of AWS is equally important for postoperative patients. Research has exhibited that to efficiently manage AWS, AWPs are needed to merge pharmacological symptom control with standardized treatment steps (e.g., blood work) for optimal care (Duby, Berry, Ghayyem, Wilson, & Cocancour, 2014). This standardized treatment method offers nurses lacking required time and specialized training, a reliable and consistent way to assess the severity of AWS, while administering appropriate treatments (Swift, Peers, Jones, & Bronson, 2010). This section of the review will provide a deeper exploration into the literature surrounding AWP, and more specifically the best means of pharmacological treatments for AWS symptoms.

Management Through Alcohol Withdrawal Protocols

A retrospective study performed by Swift et al. (2010) was the first article found in this review that described the effectiveness of a "standardized tool" or "alcohol withdrawal chart" in the management of AWS. This chart contained guidelines to instruct nursing staff on the use of medications (e.g., diazepam and thiamine administration), appropriate patient observation intervals, and blood measurements. The usefulness of the tool was measured through nurse adherence to the protocol. The results showed a positive correlation between protocol use and increased nurse compliance in AWS treatment (i.e., an increase from 49.4% to greater than 80%). This suggests that nurses were more likely to follow the AWS treatment regimen if there is a formatted guideline that outlines nursing actions.

Another retrospective study where authors discussed AWP disseminated similar results. Melson et al. (2014) uncovered through their research that the implementation of an AWS management protocol empowered nurses with the tools they needed to adequately care for this

population. Although their study did not reach statistically significant reductions in ICU admissions and restraint use, the health care facility involved strongly felt the program was a success, due to the reduction in patients with DT. Additionally, in a study by Riddle, Bush, Tittle, and Dilkhush (2010), a multidisciplinary team was able to decrease the required number of treatment days for AWS in critical and non-critical care patients from 5.2 to 3.2 days, with a standing order set. Riddle et al. also alluded to the importance of standardized medication administration, as well as the treatment of electrolyte imbalances, acute infections, and fevers. Patients with AWS frequently experience electrolyte imbalances in potassium, magnesium, and phosphate due to alterations in kidney function and absorption/resorption, as well as poor dietary intake and vomiting.

Management Through Medication

A debate currently exists within the literature research regarding the best way to medically manage AWS. Despite the benefits of symptom-triggered dosing (i.e., medicating the patient when they exhibit symptoms, rather than regular medication dosing), many health care facilities remain resistant to the method. This is due to its labor-intensive quality, and the requirement for clinical staff to be properly trained in administration (Ng, Dahri, Chow, & Legal, 2011). This dosing method uses tools, such as the CIWA-Ar, and gives nurses the autonomy to medicate patients with benzodiazepines based on an objective/subjective scale that ranks the severity of their symptoms. Other health care facilities argue that neither of the options are the best, and opt for a combination of the two (i.e., symptom-triggered dosing in addition to regular benzodiazepine administration), also referred to as protocolized management.

Maldonado, Nguyen, Schader, and Brooks (2012) explored the benefits of symptom-triggered treatment compared to benzodiazepine loading (i.e., regular administration of

benzodiazepines) through a RTC. Both treatment methods were found to be effective in the treatment of AWS; however, the authors identified a further need for research to determine which method is the most effective. Duby et al. (2014) and Ng et al. (2011) both discussed the benefits to protocolized managements, finding considerable reductions in duration of treatment, ICU stays, and use of additional medications (e.g., Haldol) in AWS patients. Duby et al. focused on an alcohol withdrawal order set that was based on a symptom-triggered dose escalation approach using benzodiazepines and phenobarbital. This study found the CIWA-Ar to be ineffective, due to the required cooperation and communication from the patient, and the potential confounding by comorbidities that may lead to inappropriate scoring.

A Canadian study by Ng et al. (2011) discordantly incorporated the CIWA-Ar into the protocolized management of AWS in their study. Their design included a preprinted order set with a combination of a fixed schedule (i.e., regular medication administration), with the choice of four standardized fixed-schedule dosing regimens, and the CIWA-AR to guide doses of as needed benzodiazepines. The results of this study suggested this method of medication administration was associated with improved efficacy and safety of alcohol withdrawal treatment for medical inpatients when compared with the previous approaches in that setting. A combination of this literature suggests that although the CIWA-Ar may not be useful in the ICU due inaccurate potential scoring of patients, the CIWA-Ar is a valid and reliable method for symptom-triggered dosing in general medical and surgical patients. In order for it to be truly utilized in practice however, health care professionals must become comfortable and confident in its administration (Ng et al., 2011).

Only two studies in this review discussed the importance of other medication administration besides benzodiazepines, as the literature on this topic was limited. An article

previously discussed in this review by Riddle et al. (2010) determined that it was important to include the administration of multivitamins, folic acid, and thiamine within their AWP. Folic acid is an important in the formation of red blood cells, and protein metabolism, while thiamine prevents the development of Wernicke-Korsakoff Syndrome. Rees and Gowing (2013) through a pre and posttest design, determined blood thiamine levels of patients with AUD to be significantly lower than the control group (i.e., participants without AUD). Their study intervention included administering a supplementation regime of parenteral and oral thiamine in an inpatient unit. The results showed a significant increase in blood thiamine levels from admission, and suggests that people with AUD should be encourage to take thiamine and vitamin supplements on a routine basis.

Although a debate remains on how to administer benzodiazepines in AWP, it is clear that they are needed to combat AWS in surgical patients. The same is true with supplemental medications such as multivitamins, folic acid, and thiamine to help prevent disabling vitamin and electrolyte deficiencies. Additional research needs to be conducted in this area before researchers can say with confidence that one method of medication administration is superior to all others. However, what can be taken away from these findings is the importance of a standardized protocol for medication administration in AWS treatment.

Strengths and Limitations

Overall, the results of the literature review demonstrated a variety weak, moderate, and strong research on the identification, prevention, and management of AWS. All studies in this review were assessed for appropriate research questions, study populations, research methodologies, ethical considerations, and validity (PHAC, 2014). In all 22 studies, operational terms were well defined, and ethical approval was received before the study took place.

Retrospective cross analyses appear to be the most accurate way to gain information on this topic (i.e., it compares new evidence based interventions to older ways of doing things), and have produced the most useful information in this review. Strong systematic reviews were also used to gather an abundance of information.

It was clear throughout this review that more research is needed on a number of topics. Firstly, there was very limited research on AWS conducted in Canada over the last 10 years, with only one study found in this review (Ng et al., 2011). The majority was conducted in the United States (e.g., Delaware), while a smaller percentage took place in Europe (e.g., Germany and Switzerland) and Mexico. Since the Canadian health care system does vary drastically from that of the United States and Europe, this information would be crucial to better inform nursing practice. Additionally, there was limited research available in potential education for patients with AUD, signs and symptoms of AUD prior to AWS, and the importance of other medication besides benzodiazepines in AWP (e.g., thiamine and folic acid). As previously mentioned, a number of studies were also the first of their kind, and therefore more research should be completed in these areas to determine the strength of the findings (e.g., Bradley et al., 2007; Maldonado et al. 2012).

Implications for Nursing Practice

The literature included in this integrative review has numerous implications for nursing practice. Since nurses are involved in all levels of health care, they have the ability to influence both frontline practice and policy change or development. In terms of patient care, this research has suggested that nurses need more support and education when dealing with AUD and AWS. This includes nurses at the emergency admission, preoperative, and postoperative level to enhance detection of AUD prior to the development of AWS symptoms. This education can also

be used to increase nurses' skills and confidence when dealing with this patient population, to improve compliance with AWP and patient outcomes (Freeman et al., 2011; Tran et al., 2009).

Nursing leaders need to work towards identifying the barriers for effective alcohol withdrawal practice, so they can address these unique problems in their specific health care setting. It is also important for these practitioners to evaluate what are already in place in terms of an AWP to determine if their methods of AUD screening and treatments of AWS are the most effective. Incorporating the interdisciplinary team is also important when developing education plans, or an AWP, as the free exchange of ideas across fields fosters an appreciation and understanding of other areas of expertise (Berl et al., 2015). Additionally, nurse leaders need to not only target increasing nursing knowledge, but also increasing their self-efficacy in clinical practice (Tsai et al., 2011). Based on these recommendations, the development of a tool kit to help nurses better understand the identification, prevention, and management of alcohol withdrawal is needed. To ensure the best possible learning, the tool kid must not be too long or too time consuming, and it must incorporate demonstrations, practice, and role play for maximum efficiency (Tsai et al., 2011).

Conclusions

Although AUD and AWS have detrimental consequences to the country and health care system, it is clear that nurses lack the resources needed for quick and effective identification, prevention, and management of them. In spite of the contradicting research, this review highlighted the key elements needed for effective screening and management, including: nurse education; a valid screening tool; a symptom-triggered and regular medication protocol; and standardized guidelines to pull it all together. Through evidence-based practice, nurses can incorporate the findings from this review to enhance their knowledge, and ability to care for

patients experiencing AWS. Advance nurse practitioners can incorporate this information into their health care facilities, to better service this patient population by preventing AWS complications. Although more research is needed, this review emphasized the need for the development of a tool kit to better prepare nurses to care for patients experiencing AWS. It is the hope that the development of this tool kit will improve not only patient outcomes, but also the quality of the workplace for nurses involved in the care of this population.

References

American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders DSM-5* (5th ed.). Arlington, VA: Author.

Berl, K. L., Collins, M., Melson, J., Mooney, R., Muffley, C., & Wright-Glover, A. (2015). Improving nursing knowledge of alcohol withdrawal: Second generation education strategies. *Journal for Nurses in Professional Development, 31*(6), 328-332. doi: 10.1097/NND.0000000000000176.

Bradley, K. A., DeBenedetti, A. F., Volk, R. J., Williams, E. C., Frank, D., & Kivlahan, D. R. (2007). AUDIT-C as a brief screen for alcohol misuse in primary care. *Alcoholism, Clinical and Experimental Research, 31*(7), 1208-1217. doi: 10.1111/j.1530-0277.2007.00403.x

Canadian Centre on Substance Abuse. (2012). *Analysis of beverage alcohol sales in Canada. Alcohol price policy series, report 2 of 3.* Retrieved from: http://www.ccsa.ca/Resource%20Library/CCSA-Analysis-Alcohol-Sales-Policies-Canada-2012-en.pdf.

Canadian Institute for Health Information. (2017). *Alcohol Harm in Canada: Examining Hospitalizations Entirely Caused by Alcohol and Strategies to Reduce Alcohol Harm*. Retrieved from https://www.cihi.ca/sites/default/files/document/report-alcohol-hospitalizations-en-web.pdf

Cremonte, M., Ledesma, R., Cherpitel, C., Borges, G., Cremonte, M., Ledesma, R. D., . . . Borges, G. (2010). Psychometric properties of alcohol screening tests in the emergency department in Argentina, Mexico and the United States. *Addictive Behaviors, 35*(9), 818-825. doi: 10.1016/j.addbeh.2010.03.021

Cunningham, L., & Puskar, K. (2007). Nursing implications of alcohol withdrawal in the postoperative orthopaedic patient. *Journal of Orthopaedic Nursing, 11*(2), 91-97. doi: dx.doi.org/10.1016/j.joon.2007.02.006

Dhalla, S., & Kopec, J. A. (2007). The CAGE questionnaire for alcohol misuse: A review of reliability and validity studies. *Clinical & Investigative Medicine*, *30*(1), 33-41. doi: dx.doi.org/10.25011/cim.v30i1.447

Duby, J., Berry, A., Ghayyem, P., Wilson, M., & Cocanour, C. (2014). Alcohol withdrawal syndrome in critically ill patients: Protocolized versus nonprotocolized management. *The Journal of Trauma and Acute Care Surgery, 77*(6), 938-43. doi: 10.1097/TA.0000000000000352.

Eastern Health. (2012). *Reducing substance use risks and harms summary.* Retrieved from www.easternhealth.ca/DownFile.Aspx?fileid=207

Freeman, T., Roche, A., Williamson, P., & Pidd, K. (2011). Hazardous alcohol use interventions with emergency patients: Self-reported practices of nurses, and predictors of behaviour. *Emergency Medicine Australasia, 23*(4), 479-489. doi: 10.1111/j.1742-6723.2011.01416.x.

Geneste, J., Pereira, B., Arnaud, B., Christol, N., Liotier, J., Blanc, O., . . . Brousse, G. (2012). CAGE, RAPS4, RAPS4-QF and AUDIT screening tests for men and women admitted for acute alcohol intoxication to an emergency department: Are standard thresholds appropriate? *Alcohol and Alcoholism (Oxford, Oxfordshire), 47*(3), 273–281. doi: 10.1093/alcalc/ags027

Genther, D., & Gourin, C. (2012). The effect of alcohol abuse and alcohol withdrawal on short-term outcomes and cost of care after head and neck cancer surgery.

Laryngoscope, *122*(8), 1739-1747. doi:10.1002/lary.23348

Gili-Miner, M., Béjar-Prado, L., Gili-Ortiz, E., Ramírez-Ramírez, G., López-Méndez, J., López-Millán, J. M., & Sharp. B. (2014). Alcohol use disorders among surgical patients: Unplanned 30-days readmissions, length of hospital stay, excessive costs and mortality. *Drug and Alcohol Dependence*, *137*, 55-61. doi: 10.1016/j.drugalcdep.2014.01.009.

Gordon, A., Olstein, J., & Conigliaro, J. (2006). Identification and treatment of alcohol use disorders in the perioperative period. *Postgraduate Medicine*, *119*(2), 46-55. doi: 10.3810/pgm.2006.07.1743

Government of Canada. (2013). *Alcohol abuse.* Retrieved from https://www.canada.ca/en/health-canada/services/substance-abuse/alcohol-abuse.html.

Jane, L. (2010). How is alcohol withdrawal syndrome best managed in the emergency department? *International Emergency Nursing*, *18*(2), 89–98. doi: 10.1016/j.ienj.2009.09.001.

Kip, M. J., Neumann, T., Jugel, C., Kleinwaechter, R., Weiss-Gerlach, E., Mac Guill, M., & Spies, C. D. (2008). New strategies to detect alcohol use disorders in the preoperative assessment clinic of a German university hospital. *Anesthesiology: The Journal of the American Society of Anesthesiologists*, *109*(2), 171-179. doi: 10.1097/ALN.0b013e31817f5be3

Leuenberger, D. L., Fierz, K., Hinck, A., Bodmer, D., & Hasemann, W. (2017). A systematic nurse-led approach to withdrawal risk screening, prevention and treatment among inpatients with an alcohol use disorder in an ear, nose, throat and jaw surgery department—A formative evaluation. *Applied Nursing Research*, *33*, 155-163. doi: 10.1016/j.apnr.2016.11.013

Maldonado, J. R., Nguyen, L. H., Schader, M. E., & Brooks, J. O. (2012). Benzodiazepine loading versus symptom-triggered treatment of alcohol withdrawal: A prospective, randomized clinical trial. *General Hospital Psychiatry, 34*(6), 611-617. doi: 10.1016/j.genhosppsych.2012.06.016

Maldonado, J. R., Sher, Y., Ashouri, J. F., Hills-Evans, K., Swendsen, H., Lolak, S., & Miller, A. C. (2014). The "Prediction of Alcohol Withdrawal Severity Scale" (PAWSS): Systematic literature review and pilot study of a new scale for the prediction of complicated alcohol withdrawal syndrome. *Alcohol (Fayetteville, N.Y.), 48*(4), 375-390. doi:10.1016/j.alcohol.2014.01.004

Matar, M. M., Jewett, B., Fakhry, S. M., Wilson, D. A., Ferguson, P. L., Anton, R. F., & Sakran, J. V. (2017). Identifying chronic heavy alcohol use in emergency general surgery patients: A pilot study. *Trauma Surgery & Acute Care Open*, *2*(1), e000098. doi: 10.1136/tsaco-2017-000098

Mayfield, D., McLeod, G., & Hall, P. (1974). The CAGE questionnaire: Validation of a new alcoholism screening instrument. *American Journal of Psychiatry, 131*(10), 1121-1123. doi: 10.1176/ajp.131.10.1121

Melson, J., Kane, M., Mooney, R., McWilliams, J., & Horton, T. (2014). Improving alcohol withdrawal outcomes in acute care. *The Permanente Journal, 18*(2), E141-5. doi: 10.7812/TPP/13-099.

Meneses-Gaya, C., Zuardi, A. W., Loureiro, S. R., & Crippa, J. S. (2009). Alcohol Use Disorders Identification Test (AUDIT): An updated systematic review of psychometric properties. *Psychology & Neuroscience, 2*(1), 83-97. doi:10.3922/j.psns.2009.1.12

Mueller, G., Schumacher, P., Wetzlmair, J., & Pallauf, M. (2016). Screening questionnaires to

identify problem drinking in the primary care setting: A systematic review. *Journal of Public Health, 24*(1), 9-19. doi: 0.1007/s10389-015-0694-3

Ng, K., Dahri, K., Chow, I., & Legal, M. (2011). Evaluation of an alcohol withdrawal protocol and a preprinted order set at a tertiary care hospital. *The Canadian Journal of Hospital Pharmacy*, *64*(6), 436. Retrived from https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3242577/

Oppedal, K., Moller, A., Pedersen, B., & Tonnesen, H. (2012). Preoperative alcohol cessation prior to elective surgery. *Cochrane Database of Systematic Reviews,* (7), CD008343. doi: 10.1002/14651858.CD008343.pub2

Public Health Agency of Canada. (2014). *Critical appraisal tool kit.* Retrieved from http://publications.gc.ca/collections/collection_2014/aspc-phac/HP40-119-2014-eng.pdf

Public Health Agency of Canada. (2015). *The Chief Public Health Officer's report on the state of public health in Canada, 2015: Alcohol consumption in Canada.* Retrieved from http://healthycanadians.gc.ca/publications/department-ministere/state-public-health-alcohol-2015-etat-sante-publique-alcool/alt/state-phac-alcohol-2015-etat-aspc-alcool-eng.pdf

Rees, E., & Gowing, L. R. (2013). Supplementary thiamine is still important in alcohol dependence. *Alcohol and Alcoholism*, *48*(1), 88-92. doi: 10.1093/alcalc/ags120

Riddle, E., Bush, J., Tittle, M., & Dilkhush, D. (2010). Alcohol withdrawal: Development of a standing order set. *Critical Care Nurse*, *30*(3), 38-48. doi:10.4037/ccn2010862

Statistics Canada. (2013). *Heavy drinking, by sex, province, and territories (number of persons).* Retrieved from http://www.statcan.gc.ca/tables-tableaux/sum-som/l01/cst01/health80a-eng.htm

Sutton, L. J., & Jutel, A. (2016). Alcohol withdrawal syndrome in critically ill patients: Identification, assessment, and management. *Critical Care Nurse, 36*(1), 28-39. doi:10.4037/ccn2016420

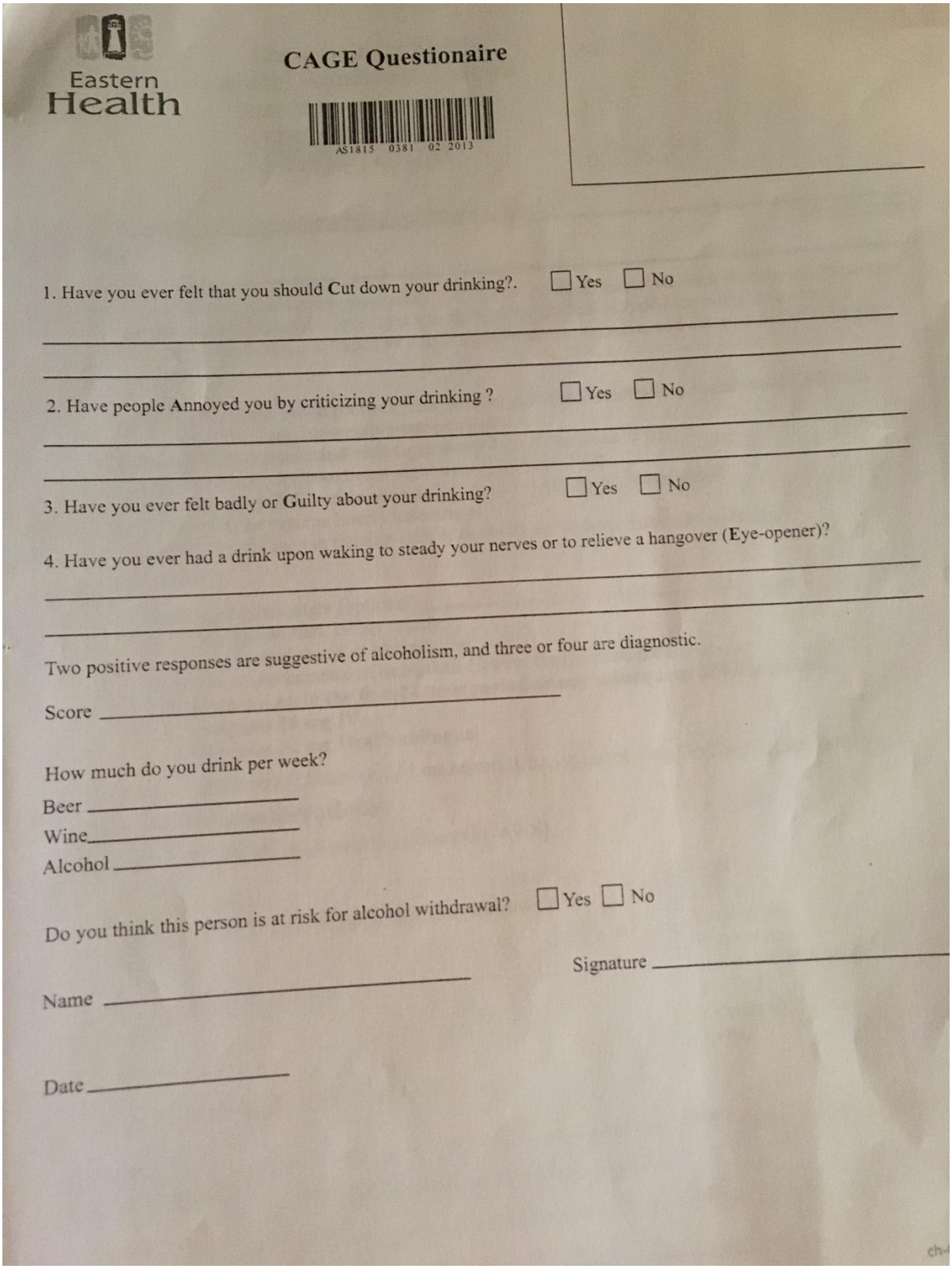
Swift, R. A., Peers, E. A., Jones, B. L., & Bronson, M. V. (2010). Utilization of a purpose-designed chart for the nursing management of acute alcohol withdrawal in the hospital setting. *Australasian Emergency Nursing Journal*, *13*(3), 70-77. doi: 10.1016/j.aenj.2010.04.001

Tran, D. T., Stone, A. M., Fernandez, R. S., Griffiths, R. D., & Johnson, M. (2009). Changes in general nurses' knowledge of alcohol and substance use and misuse after education. *Perspectives in Psychiatric Care, 45*(2), 128-139. doi: 10.1111/j.1744-6163.2009.00213.x

Tsai, Y. F., Tsai, M. C., Lin, Y. P., Weng, C. E., Chou, Y. L., & Chen, C. Y. (2011). An alcohol training program improves Chinese nurses' knowledge, self-efficacy, and practice: A randomized controlled trial. *Alcoholism: Clinical and Experimental Research*, *35*(5), 976-983. doi: 10.1111/j.1530-0277.2010.01428.x

World Health Organization. (2001). *AUDIT – The Alcohol Use Disorders Identification Test: Guidelines for use in primary care (2nd ed.).* Retrieved from http://apps.who.int/iris/bitstream/10665/67205/1/WHO_MSD_MSB_01.6a.pdf

Appendix A: Eastern Health Alcohol Withdrawal Protocol



Eastern Health

CAGE Questionaire

AS1815 0381 02 2013

1. Have you ever felt that you should **C**ut down your drinking?. ☐ Yes ☐ No

2. Have people **A**nnoyed you by criticizing your drinking ? ☐ Yes ☐ No

3. Have you ever felt badly or **G**uilty about your drinking? ☐ Yes ☐ No

4. Have you ever had a drink upon waking to steady your nerves or to relieve a hangover (**E**ye-opener)?

Two positive responses are suggestive of alcoholism, and three or four are diagnostic.

Score _____

How much do you drink per week?

Beer _____

Wine _____

Alcohol _____

Do you think this person is at risk for alcohol withdrawal? ☐ Yes ☐ No

Name _____ Signature _____

Date _____

Eastern Health

Doctor's Order Sheet
Alcohol Withdrawal Protocol
Non-Medication (Part I)

POI370 0384 02 2013

Name:

HCN:

Date of Birth:

CIWA-Ar = Clinical Institute Withdrawal Assessment of Alcohol Scale, revised

ALLERGIES: ☐ NO KNOWN

Preamble: The following orders are appropriate after a clinical diagnosis of Alcohol Withdrawal Syndrome (DSMIV) is confirmed. This order sheet is not to be used for alcohol intoxication without features of withdrawal. Other related diagnoses such as polydrug withdrawal, hypoxia, and other causes of delirium must be excluded.

1. Monitor CIWA-Ar scale, blood pressure, temperature, pulse and respirations hourly until CIWA-Ar score is 10 or less for three consecutive measurements.
2. Then monitor CIWA-Ar scale and vital signs every 4 hours for three times.
3. Then monitor CIWA-Ar scale and vital signs every shift for 7 days.
4. After 10 days of doing CIWA scale once daily, the protocol may be discontinued.
5. If scale is 10 or greater, resume hourly assessment.
6. **When possible**, consistency in nursing staff is desirable to increase reliability of ratings.
7. **Call physician if:**

   Vital Signs parameters (optional) _____
   Respirations less than 10 per minute
   Change in mental status or obtundation
   CIWA-Ar score increase of more than 10 over the previous measurement
   Cumulative dose in the first 24 hour period or any subsequent 24 hour period.
   Lorazepam 16 mg IV
   Lorazepam 32 mg Oral/Sublingual

*Conversion Chart: Every 0.5 mgs of IV Lorazepam is equivalent to 1mg Oral/Sublingual Lorazepam

Management considerations:

Investigations (note: lab mnemonic for all tests is /AWS)

- ☐ Albumin
- ☐ Blood Alcohol Level
- ☐ Blood and Urine Toxic Screen (if clinically indicated)
- ☐ Calcium
- ☐ CBC
- ☐ Chest X-ray (PA/Left LAT)
- ☐ Glucose
- ☐ Creatinine
- ☐ EKG
- ☐ GGT
- ☐ LFT's
- ☐ Electrolytes
- ☐ Magnesium
- ☐ Inorganic Phosphate
- ☐ PT/INR
- ☐ Urinalysis
- ☐ Urea

** See Part II for Observation Status Orders*

Physician' s Name: _____ Date: _____ Time: _____

Physician' s Signature: _____

Nurse's Name: _____ Date: _____ Time: _____

Eastern Health

Doctor's Order Sheet
Alcohol Withdrawal Protocol
Non-Medication (Part II)

PO1370 0384 02 2013

Name:

HCN:

Date of Birth:

Observation Status Orders

ALLERGIES: ☐ NO KNOWN

Observation Status: consider closer monitoring if respiratory insufficiency present at baseline or if respiratory suppression ensues.

As in accordance with The Health Care Corporation of St. John's Nursing Practice Manual: Patient Surveillance Policy

☐ **Routine**: Standard (routine) minimum level of observation is Hourly for all patients not requiring Close or Constant (Continuous) observation, unless specifically outlined by program/division.

☐ **Close**: Patients on close surveillance will be observed at 15 or 30 minute intervals by a designated staff member. Patients that may require close observation:

- low to moderate risk of self harm
- at risk to fall
- patient in restraints
- non-compliance with therapy
- risk for elopement (wandering)
- discontinuation of Constant Observation
- acute confusional state.

☐ **Constant**: All patients on constant (continuous) surveillance will have an increased level of observation and supervision by designated staff consisting of one-to-one monitoring techniques to provide safety and to protect the well being of the individual and others in the patient care environment. Patients requiring constant (continuous) observation:

- high potential for self harm/injury
- harm/injury to others
- high potential for elopement (wandering),
- non-compliance with therapy
- acute confusional state.

Physician's Name: _____ Date: _____ Time: _____

Physician's Signature: _____

Nurse's Name: _____ Date: _____ Time: _____

Nurse's Signature: _____

ch-0384 2015/01

Eastern Health

Alcohol Withdrawal Assessment Record

AS2070 0385 02 2013

Year Month Date:																			
Time:																			
Nausea & Vomiting																			
Tremor																			
Paroxysmal Sweats																			
Anxiety																			
Agitation																			
Tactile Disturbances																			
Auditory Disturbances																			
Visual Disturbances																			
Headache, Fullness in Head																			
Orientation/Clouding of Sensorium																			
Total Score																			
Respirations																			
Lorazepam dose (mg)																			
Initials																			

CLINICAL INSTITUTE WITHDRAWAL ASSESSMENT OF ALCOHOL SCALE, REVISED (CIWA-Ar)

NAUSEA & VOMITING
Ask " Do you feel sick to your stomach? Have you vomitted?" Observation.
0 No nausea & no vomiting
1 Mild nausea with no vomiting
4 Intermittent nausea with dry heaves
7 Constant nausea, frequent dry heaves and vomiting

TREMOR
Arms extended and fingers spread apart. Observation
0 No tremor
1 Not visible, but can be felt fingertip to fingertip
4 Moderate, with patient's arms extended
7 Severe, even with arms not extended

PAROXYSMAL SWEATS
Observation
0 No sweat visible
1 Barely perceptible sweating, palms moist
4 Beads of sweat obvious on forehead
7 Drenching sweats

ANXIETY Ask " Do you feel nervous?" Observation
0 No anxiety, at ease
1 Mild anxious
4 Moderately anxious, or guarded, so anxiety is inferred
7 Equivalent to acute panic states as seen in severe delirium or acute schizophrenic reactions

AGITATION Observation
0 Normal activity
1 Somewhat more than normal activity
3 Moderately fidgety and restless
7 Paces back and forth during most of the interview, or constantly thrashes about

TACTILE DISTURBANCES Ask " Have you any itching, pins and needles, burning, numbness or do you feel bugs crawling on or under your skin?"Observation
0 None
1 Very mild itching, pins & needles, burning or numbness
3 Moderate itching, pins & needles, burning or numbness
5 Severe hallucinations
7 Continuous hallucinations

AUDITORY DISBURBANCES 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
3 Moderate harshness or ability to frighten
5 Severe hallucinations
7 Continuous hallucinations

VISUAL DISTURBANCES Ask " Does the light appear to be to bright? Is its color different? Does it hurt your eyes? Are you seeing anything that is disturbing to you? Are you seeing things that you know are not there?" Observation
0 Not present
1 Very mild sensitivity
3 Moderate sensitivity
5 Severe hallucinations
7 Continuous hallucinations

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 No present
1 Very mild
3 Moderate
5 Severe
7 Extremely severe

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

Nurse's Signature/Status	Initials	Nurse's Signature/Status	Initials	Nurse's Signature/Status	Initials

ch-0385 2015/01

Eastern Health

Doctor's Order Sheet
Alcohol Withdrawal Protocol
Medication

POI 320 0382 02 2013

Name:

MCP#:

Chart #:

Patient's Name: _____

CIWA-Ar = Clinical Institute Withdrawal Assessment of Alcohol Scale, revised

ALLERGIES: ☐ NO KNOWN

If CIWA-Ar 10 or greater, administer the specified medication every hour at dosage corresponding to the observed CIWA-Ar score. Continue therapy until the CIWA-Ar score is less than 10 or the patient is sedated.

CIWA-Ar Score	Lorazepam Dosage	
0-9	0 mg oral/sublingual	0 mg IV
10-12	1 mg oral/sublingual	0.5 mg IV
13-14	2 mg oral/sublingual	1 mg IV
15-17	3 mg oral/sublingual	1.5 mg IV
Over 17	4 mg oral/sublingual	2 mg IV

* Conversion Chart: Every 0.5 mgs of IV Lorazepam is equivalent to 1mg po/sl Lorazepam

☐ Thiamine 100 mg IV or IM for the first dose and then daily.
Switch delivery route to PO if patient able to take orally.

☐ Multivitamins one tablet PO daily
If not taking multivitamins (MVI) PO, administer MVI one ampule (10 mL) in 500 mL normal saline solution IV over 2 hours daily.

☐ Folic acid 1 mg PO daily

Consultation request:

☐ Psychiatry, if suspected psychiatric illness, (visual, auditory, and tactile hallucinations), especially if delirium tremens present

☐ Social Work

☐ ICU: If significant cardio/respiratory and/or Central Nervous System changes.

Medications for complications of withdrawal require separate orders.
Seizures require Benzodiazepine therapy regardless of CIWA-Ar scores.
Beta Blockers may mask the early symptoms of withdrawal

Physician' s Name: _____ Date: _____ Time: _____

Physician' s Signature: _____

Nurse's Name: _____ Date: _____ Time: _____

Nurse's Signature: _____

Appendix B:

Literature Summary Table for Tran et al. (2009).

Name, Author, Date, Objective	Sample/Group Size, Setting Characteristics	Design and Methodology	Key Results and Findings	Strengths and Limitations	Conclusion and Rating
Name: Changes in general nurses' knowledge of alcohol and substance use and misuse after education. **Author:** Tran, D. T., Stone, A. M., Fernandez, R. S., Griffiths, R. D., & Johnson, M. **Date:** April 2009 **Objective:** The main objective was to assess the impact of education programs in nurses' knowledge and their competence in identifying and managing patients AUD.	120 registered nurses working in general medical and surgical wards were included in the study. The study was conducted in Sydney, Australia. All nurses working in two tertiary referral hospitals within a large metropolitan area health service were eligible to participate. 80 nurses attended the educational workshops.	A pretest (nurses with no specific education) and posttest (nurses experiencing a targeted education program) was used to examine changes in nurses' knowledge of alcohol problems. Findings were then compared to that of preexisting literature using identical items in a sample of mental health nurses. The education program was based on contemporary evidence and included workshops which covered topics such as the management of inpatients with withdrawal, and intoxication; safe level of alcohol use; nicotine replacement and smoking cessation techniques; illicit drug use; and patient education safety pamphlets. The education program consisted of two similar half- day workshops. Nurses who could not attend either of the workshops were given separate education packages containing the workshop handout materials. Teaching methods included a PowerPoint presentation, handouts, role-play with	Questionnaires were distributed to 119 and 110 nurses before and after the education with 59 pretest and 39 posttest surveys analyzed respectively. The knowledge level of the nurses in the with-education group was significantly higher than that of the without-education group. The overall score increased from 6.3 to 7.7 out of a possible score of 15 (t = □3.422, p = .001). The nurses who attended the education sessions demonstrated a significantly higher level of alcohol-related knowledge, including safe drinking limits and management of alcohol dependence, withdrawal, and detoxification. Ninety percent understood that long-acting benzodiazepines are an appropriate agent to manage alcohol withdrawal symptoms compared with 70% in the pretest (p = .021). They also understood the importance of administering thiamine prophylactically to people with alcohol dependence (95% vs. 89%, p = .322). In comparison with nurses working in mental health services who did not receive	**Strengths:** -Multiple sampling locations. -Survey used was developed by experts in the field. -Ethical approval obtained -Appropriate statistical test used. -Surveys with missing data were not included. **Limitations:** -No control group. -Nurses who could not attend the workshops were still included in the study, and given material to review at home; learning may not have been as effective as the workshops. -Small number of survey respondents. -High staff turnover rates limited the effectiveness of the pretest/post-test design. -Small sample size.	The education program for the nurses working in medical and surgical wards did improve the level of knowledge in relation to safe drinking level and the management of alcohol withdrawal. However, the nurses still felt they lacked adequate knowledge and competence in dealing with clients with alcohol-related problems. The results of this study suggest a need for a comprehensive and regular training and education intervention to provide the general nurses with skills and knowledge to screen for substance use and to identify substance dependence, withdrawal phenomena, and management of detoxification and overdose. **PHAC (2014) rating**: Medium in design and

scenarios, discussion, and poster display.

During the workshops, the nurses were provided with the up-to-date literature, policies, and guidelines in relation to substance misuse prevalence and its impacts on health, early identification, assessment, brief intervention, and referrals.

A survey was administered then to test nurse's knowledge before the workshop and after the workshop, to see if additional education improved their knowledge base.

Post-test data were collected at two points: immediately prior to implementation of the education program and 3 months after.

Data were analyzed using the Statistical Package for the Social Sciences (SPSS), and the data was presented as percentages.

Independent *t* test, nonparametric Mann–Whitney *U* test, and differences in responses to each knowledge item, perceived knowledge, and competence skills were examined by the chi-square test.

an education, the nurses in this study in the with-education group performed remarkably better than the mental health nurses in all questions of the alcohol-related domain except for alcohol detoxification.

Nurses in this study proved to have lower knowledge levels than mental health professionals regarding illicit drugs.

When asked to assess their knowledge, the two groups (without-education and with-education) they reported lack of knowledge and skills to be able to adequately care for patients with drug- and alcohol-related problems.

A majority of nurses in this study reported having no or little knowledge in the management of detoxification (95% of the without- education group and 79% of the with-education group).

They also felt inadequately prepared to identify, refer, manage, or provide clinical and educational interventions to patients.

quality.

Literature Summary Table for Berl et al. (2015).

Name, Author, Date, Objective	Sample/Group Size, Setting Characteristics	Design and Methodology	Key Results and Findings	Strengths and Limitations	Conclusion and Rating
Name: Improving nursing knowledge of alcohol withdrawal: Second generation education strategies. **Author:** Berl, K. L., Collins, M., Melson, J., Mooney, R., Muffley, C., & Wright-Glover, A. **Date:** August 2008. **Objective:** The main objective of this study was to evaluate the knowledge of nursing staff regarding alcohol withdrawal after the implementation	The study consisted of a two-phase pilot project, with focus groups of nursing staff to evaluate the CMG for Alcohol Withdrawal Symptom Management in a hospital in Delaware. Surveys were administered to 250 nurses on five medical units pre and post education sessions. 88 nurse's responses to the pre-education surveys and 92 responded to the post-education surveys were received.	Nursing professional development (NPD) specialists educated nurses on the use of the new protocol before implementation. Education was provided by NPD specialists using small groups on individual patient care units, and larger groups of nurses from multiple units in a classroom setting. Pre-education surveys were administered prior to the Phase one. Phase one education included sessions on: CIWA-Ar assessment tool, nursing grand rounds, and harm reduction. Content experts provided information about the history of alcohol abuse management, basic pathophysiology of alcohol abuse, and current practice within the local healthcare system. Key aspects of the new alcohol withdrawal CMG were introduced. The CMG included the Alcohol Withdrawal Risk Assessment (AWRA), the CIWA-Ar, order sheet, and algorithms. Point prevalence assessments were conducted via chart review hospital-wide one month after implementation helped to determine compliance to the CMG. An APN involved in the alcohol withdrawal task force led a focus group to determine concerns or problems that staff nurses encountered related to implementation of the CMG.	In Phase one: of the 184 charts that were reviewed, 96 (52%) had the AWRA completed. All of the patients who scored 5 or greater on the AWRA had the CIWA-Ar initiated. In April of 2010, charts for 224 patients were reviewed. Of those, 141 (63%) had the AWRA completed. Again, all of the patients who scored 5 or greater on the AWRA had the CIWA-Ar initiated. The following themes emerged from the focus groups: -Reeducation needs, -Effective use of CIWA-Ar scores, -Increased burden of caring for patients on medical-surgical units, -Limitations of the form used for documentation, -Ethical dilemmas. Focus group feedback, staff comments, and discussion with the interdisciplinary team revealed confusion around the correct meaning of the AWRA and CIWA-Ar scores. After phase two was completed evaluations showed: increases in the percentage of AWRA completed (79% in the fourth quarter of 2010, 87% in the first quarter of 2011, and 90% in the second quarter of 2011) and the CIWA-Ar was administered in 94%, 100%, and 98% of patients whose charts were reviewed, respectively.	**Strengths:** -Phase one identified knowledge defects, and phase two was designed to address these defects. -Data collection methods well described. **Limitations:** -Limited information provided regarding statistical methods. -Limited information provided regarding sampling. -Low response rate for surveys. -Weak pre post design.	Through the provision of nursing education regarding alcohol withdrawal, nurses' comfort level in caring for AWS improved, potentially improving multidisciplinary communication and clinical outcomes. **PHAC (2014) rating:** Weak in design and quality.

of the Care Management Guideline (CMG) for Alcohol Withdrawal Symptom Management	The focus group included eight open-ended questions to solicit information and keep the discussion focused. Representation was provided from all units in the hospital. Phase two consisted of additional education (second generation education) on: -physiology of alcohol withdrawal and DT - mechanism of action of benzodiazepines, dosing, and frequency of administration for effective management of alcohol withdrawal -directions on how to complete the CIWA -correct use of the newly implemented electronic AWRA -CIWA-Ar forms; and n mobilization of additional resources. After this education, a post-education survey was administered to nurses who partook in the additional session. Mann-Whitney U test was performed to test for statistical significance between pre to post tests.	**Survey results:** The pre-education survey revealed that many nurses rated their knowledge of the CIWA-Ar assessment tool as moderate, substantial, or extensive. This was unexpected based on the feedback from the focus group discussion. The post-education survey showed that nurses' ratings of their knowledge of the CIWA-Ar assessment tool increased. Statistical significance suggested that nursing comfort in caring for patients with AWS increased with additional information.

Literature Summary Table for Swift et al. (2010).

Name, Author, Date, Objective	Sample/Group Size, Setting Characteristics	Design and Methodology	Key Results and Findings	Strengths and Limitations	Conclusion and Rating
Name: Utilization of a purpose-designed chart for the nursing management of acute alcohol withdrawal in the hospital setting. **Author:** Swift, R. A., Peers, E. A., Jones, B. L., & Bronson, M. V. **Date:** August 2010 **Objective:** The main objective of this study was to describe nursing utilization of a purpose-designed alcohol withdrawal management chart in terms of completeness of	The study was conducted at a single adult tertiary hospital in Perth, Western Australia. The hospital has all medical and surgical specialties with the exception of Obstetrics, Gynecology and Pediatrics. A convenience sample was 200 consecutive patients admitted through the emergency department from October - December 2007 who were placed on the alcohol withdrawal chart were used to determine utility.	A retrospective review was performed on data collected on a standardized chart for management of alcohol withdrawal to further assess the utility of the alcohol withdrawal chart (AWC) after six years of use. Utility would be assessed by the compliance by nurses to the AWC, in terms of completeness of scores (i.e. proportion of missing score items), and compliance with the recommended diazepam dose and time interval between observations. Lack of utility would likely be reflected in poor compliance. A standardized data collection record was used when obtaining information from chart review. The prime focus was on the completeness of data entries and compliance with associated explicit recommendations on diazepam dosing and observation intervals. There was also a secondary analysis of differences between the emergency department short stay ward and hospital wards. The main data of interest were the 6 item scores, the total score, time of score, dose and time of diazepam administration, and the admitting ward. Use of medications other than diazepam, admission breath or blood alcohol measures and administration of	There was no difference in mean total dose of diazepam between hospital wards and the short stay ward at 24 h (95% CI −33.9 to 0.4), 48 h (95% CI −10.4 to 77.1), or 72 h (95% CI −32.7 to 329.8). Medication was administration in 1852 (59.9%) of AWC entries. Of the 3096 AWC entries recorded, 466 scores (15.1% of all scores) were incomplete; 301 (9.7% of all scores) had a total recorded but one or more score items missing without explanation, 163 (5.3% of all scores) had no scores or total recorded because the patient reported as asleep, and 2 because of seizure (in the same patient). The overall compliance with the recommended observation interval (within the variation limits) was 49.4%. Hospital wards and the short stay ward performed similarly with 49.1% compliance compared to 49.6%, respectively. Two of 200 patients had a Code Blue (medical emergency) called during their admission, both on a hospital ward. There were 7 ICU admissions, 5 directly from ED (4 with overdose with substances other than alcohol, 1 with non-alcoholic seizures) and 2 from hospital wards. The overall rate of completion of AWC score items and administration of recommended doses	**Strengths:** -Ethical approval was obtained. -One standardized form was used for all data collection. -Relatively large sample size. **Limitations:** -Convenience sampling was used. -Authors decided what would be a good compliance rate without research to back up same. -A power analysis was not completed. -Only one hospital included in the study. -The study did not examine how it performs in terms of patient outcome or how it compares with other models of hospital management of the alcoholic patient.	High nursing compliance with recommendations on patient management, in terms of completeness of a clinical scoring tool and use of medication, can be achieved using a standardized, single page, symptom-triggered management chart. **PHAC (2014) rating:** Medium in design and quality.

recording assessment measures, and use of recommended dose of diazepam and observation intervals.

thiamine were also recorded when documented in the medical record.

Compliance by nursing staff of the short stay ward was compared to staff on other hospital wards. The short stay ward was used as a reference ward because it has a smaller nursing staff pool.

SPSS was used to conduct the *t*-test for continuous variables and Pearson's Chi-Square for categorical data, with a p-value set 0.05.

of diazepam, greater than 80%, was considered good.
Hospital Wards and the short stay ward performed similarly in compliance with completeness of score except with recording temperature.

Literature Summary Table for Opedal et al. (2012).

Name, Author, Date, Objective	Sample/Group Size, Setting Characteristics	Design and Methodology	Key Results and Findings	Strengths and Limitations	Conclusion and Rating
Name: Preoperative alcohol cessation prior to elective surgery. **Author:** Oppedal, K., Moller, A., Pedersen, B., & Tonnesen, H. **Date:** July 2012 **Objective:** The main objective was to assess the effect of preoperative alcohol cessation on the rate of postoperative complications in hazardous drinkers, as well as to assess the effect of preoperative alcohol cessation on alcohol use in both the postoperative period and the long term.	The meta-analysis included two randomized control trials (RCT), which involved 69 patients. The electronic search resulted in 669 potentially relevant studies. 2 studies were included that evaluated the effect of intensive alcohol cessation interventions including pharmacological strategies for alcohol withdrawal and relapse prophylaxis. Studies involving hazardous drinkers undergoing all types of surgical procedures under anesthesia, or sedation who were given a preoperative alcohol cessation or control intervention were included, as were studies of inpatients as well as studies in a day or ambulatory care facility.	The study consisted of a meta-analysis. The authors searched Cochrane Central Register of Controlled Trials (*The Cochrane Library* 2011, Issue 9); Ovid MEDLINE (1966 to September 2011); Ovid EMBASE (1966 to September 2011); CINAHL via EBSCOhost (1982 to September 2011). The authors included all RCT that evaluated the effects of a preoperative alcohol cessation intervention on postoperative complications or postoperative alcohol consumption, for both short and long term in hazardous drinkers. Intraoperative and postoperative alcohol interventions were excluded. Two authors independently scanned the titles and abstracts of reports identified by the search strategies and evaluated potentially relevant studies, chosen by at least one author, using full-text versions. Three authors independently extracted data using a tool based on guidance in the *Cochrane Handbook for Systematic Reviews of Interventions, while a forth author resolved any disagreements.* To draw conclusions about the overall risk of bias for an outcome, authors evaluated domains such as random sequence generation, allocation concealment, blinding, incomplete outcome data, and selective outcome reporting as well as recruitment, follow-up rates, and other sources of bias. Main outcomes were presented as dichotomous variables and weighted mean differences (with 95% confidence intervals (CI)) were calculated for outcome measures when possible. 95% CIs were calculated for each effect size estimated, using Mantel-Haenszel (MH) for dichotomous outcomes and inverse variance (IV) for continuous outcomes.	Meta-analysis showed an effect on the overall complication rates (odds ratio (OR) 0.22; 95% confidence interval (CI) 0.08 to 0.61; P = 0.004). There was no significant reduction of in-hospital and 30-day mortality (OR 0.39; 95% CI 0.06 to 2.83; P = 0.35). It was demonstrated that intensive interventions aimed at complete alcohol cessation reduced the number of complications, however no effect was found on mortality rates and length of stay. When determining if alcohol use decreased postoperatively due to preoperative cessation the research showed: alcohol consumption was significantly lower in the intervention group after one month (P = 0.05; the mean difference and 95% CI were not reported) but not after three months (mean difference -147.00; 95% CI -323.62 to -29.62; P = 0.10).	**Strengths:** -Strong study design, including only RTC. -Low risk of bias. -Original authors of the included studies were contacted for any missing data. -Missing statistics were calculated. -Outcome assessors were blinded **Limitations:** -Only included two articles, due to the small amount of information on this topic. -The included studies had small sample sizes.	The study suggested that intensive preoperative alcohol cessation interventions, including pharmacological strategies for relapse, prophylaxis, and withdrawal symptoms, may significantly reduce postoperative complication rates. **PHAC (2014) rating:** Strong in design and quality.

Literature Summary Table for Leuenberger, Fierz, Hinik, Bodmer, and Hasemann (2017).

Name, Author, Date, Objective	Sample/Group Size, Setting Characteristics	Design and Methodology	Key Results and Findings	Strengths and Limitations	Conclusion and Rating
Name: A systematic nurse-led approach to withdrawal risk screening, prevention and treatment among inpatients with an alcohol use disorder in an ear, nose, throat and jaw surgery department—A formative evaluation. **Author:** Leuenberger, D. L., Fierz, K., Hinck, A., Bodmer, D., & Hasemann, W. **Date:** Feburary 2017. **Objective:** The main objective of this study was to evaluate the newly developed systematic approach in view of nurses' adherence to screening patients	The study took place in a Swiss acute hospital, with 19 beds. 87 inpatients who met inclusion criteria were included in the study. Screenings by doctors/ nurses revealed 49 patients with AUD. The inclusion criteria were: adult patients (18 years and older), hospitalized with an ear, nose, throat or jaw carcinoma, which required planned hospitalization for 72 h and beyond for surgery.	The study was a formative evaluation study using a retrospective chart review. Consecutive sampling was used: Each patient had the same chance of being included into the study. Patients were identified using *Microsoft Access* to extract data via *Open Database Connectivity* from the hospital database (medical information systems), patients' charts and from the nursing workload management system. All patients with hints of withdrawal, delirium or alcohol consumption were identified by *Structured Query Language* queries. One author manually screened the patients' charts for doubles, diagnosis, type of surgery, duration of anesthesia and internal employees. These measurements consisted of nurses' screenings for regular alcohol consumption, withdrawal risk assessment, offering of substitution therapy, nurses' assessments of withdrawal symptoms and symptom oriented withdrawal management. The quantity and severity of withdrawal symptoms were assessed per day according to the patients' charts, using the CIWA-Ar. Patients who achieved a minimum score of two, in two different questions were considered to show symptoms of alcohol withdrawal syndrome.	According to the admission sheets filled out by the nurses and medical doctors, 38 (44%) patients showed no current alcohol consumption. The remaining 49 (56%) patients showed current alcohol consumption 21(41%) alcohol consumers were at risk and 6 of them developed an alcohol withdrawal syndrome. Nine (43%) decided to participate in the substitution therapy involving Lorazepam during their hospitalization. Five (24%) patients refused the substitution therapy and one of them received low-dose Lorazepam on a regular basis and requested additional Lorazepam, if required. 4/9 patients who agreed to follow the algorithm showed alcohol withdrawal symptoms (2 received scheduled Lorazepam). 1/5 patients who refused to follow the algorithm suffered from an alcohol withdrawal syndrome and the patient was allowed to drink alcohol from admission on. According to the patients' charts, all patients with current alcohol consumption were identified, either by the nurses, medical doctors or	**Strengths:** -Weak study design -Study was ethically approved. - The research team used all patient-related data anonymously -The authors provided valuable information for further development of the algorithm processes. -No study addressing this topic has been recently published. - the nurses' documentation was double checked with the doctors' to verify findings. **Limitations:** -Small sample size. -Consent was not obtained from participants. -It could not be determined why nurses correctly conducted the algorithm in < 60% of the patients at risk. -Researcher had to rely on pre-existing data. -The retrospective design precludes causal interpretations.	The results of this study demonstrated the importance for holistic delirium management, including delirium due to substance abuse as well as medical conditions. Although nurses safely managed patients' symptoms, nurses' adherence to the interventions was suboptimal and requires stronger leadership. **PHAC (2014) rating:** Medium in design and quality.

for regular alcohol consumption, as well as managing their withdrawal symptoms using the Clinical Institute Withdrawal Assessment of Alcohol Scale, Revised (CIWA-Ar)	SPSS was used to analyze descriptive data according to measurement levels and distribution of data: mean, standard deviation and 95% confidence interval for normally distributed interval level data; median and interquartile range for non-normally distributed data on interval level.	both: Nurses and doctors detected 33 (67%) patients with current alcohol consumption. Nurses correctly conducted all preventive elements of the intervention bundle in 14 (58%) patients at risk but overall, only performed 50% of the required assessments.	-It was difficult to control bias and confounding variables.

Literature Summary Table for Freeman, Roche, Williamson, and Pidd (2011).

Name, Author, Date, Objective	Sample/Group Size, Setting Characteristics	Design and Methodology	Key Results and Findings	Strengths and Limitations	Conclusion and Rating
Name: Hazardous alcohol use interventions with emergency patients: Self-reported practices of nurses, and predictors of behavior. **Author:** Freeman, T., Roche, A., Williamson, P., & Pidd, K. **Date:** August 2011 **Objective**: The main objective of this study was to examine Australian ED nurses' current practices in asking patients about alcohol and assisting patients to manage their alcohol consumption and to investigate strategies to support ED nurses in these interventions.	The study was conducted by the National Centre for Education and Training in Addiction, Flinders University, South Australia. Convenience sampling was used to gather the sample of nurses. A total of 125 nurses returned the first survey, and 71 nurses returned the second survey.	The study design consisted of a prospective survey of a national emergency department (ED) nurses. A two-stage survey was administered to ED nurses. The first questionnaire measured theoretical and organizational predictors of behavior, and underlying beliefs regarding AUD. The second questionnaire explored rates of asking patients about AUD and assisting patients them after AUD was identified. Upon completion of the first questionnaire, participants were sent the second questionnaire, which measured frequency of asking patients about alcohol and assisting patients to manage their alcohol consumption. Nurses were then asked to estimate how many patients they had seen in the last week and how many they had intervened with in regard to alcohol. Questionnaires were coded to match using an anonymous code. Path analysis in the form of a series of multiple regressions, univariate normality, *T*-tests, and descriptive statistics were used to analyze the questionnaires.	Of the 312 first questionnaires administered, 125 were returned (40%). A further 79 returned the second questionnaire (63% of those who returned the first questionnaire). Comparisons between groups indicated those who returned the second questionnaire reported greater intentions to ask and assist patients, more positive attitudes towards asking, and higher role legitimacy, autonomy and controllability than those who did not return the second questionnaire. Approximately, two-thirds of nurses (n = 86/125, 69%, 95% CI 61–77%) had undertaken alcohol-specific education or training, with in-service training most frequently reported (n = 48/125, 38%, 95% CI 30–47%). Thirty-one percent of nurses (n = 34/111, 14 missing cases, 95% CI 20–36%) were aware of an ED alcohol intervention policy. For normative beliefs, nurses ranked the influence of the patient, medical staff, and drug and alcohol nurses as most important when deciding whether or not to ask or assist patients Nurses asked on average approximately one in four patients about alcohol (median = 26.3% of patients, IQR 6.7–72.7%, 1095/4279 total patients). 71 ED nurses who completed the behavior measure intervened with nearly 500 patients (n = 488) in 1 week, with an average of almost two patients per day.	**Strengths:** -Ethical approval was obtained. -Anonymous coding was used. -Pairwise deletion was used for missing data. -Appropriate statistical test used. **Limitations:** -Low response rates. -Convenience sample. -Limited information regarding sampling location. -Potential biases exist due to the self-reporting nature of the questionnaires.	The study demonstrated that nurses appear positively disposed when engaging with patients in regard to alcohol. However, greater support is needed to achieve the public health benefits from this engagement. **PHAC (2014) rating:** Medium in design and quality.

Literature Summary Table for Melson et al. (2014).

Name, Author, Date, Objective	Sample/Group Size, Setting Characteristics	Design and Methodology	Key Results and Findings	Strengths and Limitations	Conclusion and Rating
Name: Improving alcohol withdrawal outcomes in acute care. **Author:** Melson, J., Kane, M., Mooney, R., McWilliams, J., & Horton, T. **Date**: 2014 **Objective:** The main objective of the study was to reduce the incidence of alcohol withdrawal advancing to DT, restraint use, and transfers to the intensive care unit (ICU) in patients with DT, through the development, implementation, and evaluation of a bundled AWS management plan.	The alcohol withdrawal team at the Christiana Care Health System in Delaware introduced care management guidelines used by all disciplines, which included tools for screening, assessment, and symptom management. Christiana Care had no standardized screening criteria for assessing risk of alcohol withdrawal syndrome, no consistent approach to treatment, and no formal method for monitoring and adjusting treatment outside the critical care units before this implementation. The Patient Safety Committee charged a team of nurses, physicians, and social workers with the task of developing a system of assessment and management that would result in: 1) early identification and monitoring of patients at	The study design consisted of retrospective chart reviews of alcohol withdrawal incidents prior to implementation of the new guidelines, and a prospective review of charts quarterly after the programs implementation. Beginning in October 2009, the standard nursing admission assessment for adult patients included a risk assessment for alcohol withdrawal using the Alcohol Use Disorders Identification Test-Piccinelli Consumption (AUDIT-PC). Patients who scored 5 or greater were then assessed using the CIWA-Ar, a 10-item scale used to categorize alcohol withdrawal on the basis of symptom severity. The alcohol withdrawal management team monitored results for effectiveness and made adjustments when indicated. The aims of this project were to: 1. Reduce the incidence of alcohol withdrawal syndrome advancing to DT. 2. Reduce restraint use in patients with a DT diagnosis. 3. Decrease transfers to the ICU for patients with DT. Data analysts extracted information from existing data sources for patients with a discharge diagnosis of alcohol withdrawal syndrome or DT for 9 months before implementation. Following implementation of the intervention, nursing quality and safety representatives conducted monthly monitors to determine if the alcohol withdrawal risk assessment and the CIWA-Ar were administered as indicated by the care management guideline.	Of the 39,402 admissions before implementation of the care management guideline, 462 patients had a discharge diagnosis of alcohol withdrawal syndrome or DT, including 134 patients with a discharge diagnosis of DT. Of the 50,534 admissions over all four quarters, 602 patients a discharge diagnosis of alcohol withdrawal syndrome or DT, with 159 having a discharge diagnosis of DT. The percentage of patients with a diagnosis of alcohol withdrawal syndrome who developed DT decreased from 16.4% (76/462) before implementation to 12.9% (78/602) after implementation. In the 3 quarters preceding implementation, 60.4% of the patients with DT (81/134) were restrained compared with 44.4% (71/159) restrained in the 4 quarters after implementation. Transfers from floors other than ICUs to	**Strengths:** -Ethical approval obtained. -Examine pre and post implementation of the intervention. -Research complemented pre-existing literature. **Limitations:** -Limited information on the methods. -Limited information provided on statistical methods. - There was no opportunity for including a group that did not receive the intervention, as this was a faculty wide implementation.	Early identification of patients for potential alcohol withdrawal followed by a standardized treatment protocol using symptom-triggered dosing improved alcohol withdrawal management and outcomes. **PHAC (2014) rating:** Medium in design and quality.

risk of alcohol withdrawal syndrome and 2) reduced variation in care through the adoption of evidence-based standards/guidelines and clinician order set. The study included a review of 39,402 admissions prior to program implementation, and 50,534 post implementation.	Quarterly retrospective chart abstractions were conducted to determine ongoing devotion to the care management guideline. A data report card was created to reflect the percentage of patients with primary or secondary diagnoses of alcohol withdrawal syndrome or DT, restraint use, average length of stay, ICU admissions, and transfers to the ICU.	the ICU decreased from 21.6% (29/134) before implementation to 15% (24/159) after implementation. Christiana Care demonstrated a decrease in the incidence of alcohol withdrawal syndrome progressing to DT.	

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Literature Summary Table for Matar et al. (2017).

Name, Author, Date, Objective	Sample/Group Size, Setting Characteristics	Design and Methodology	Key Results and Findings	Strengths and Limitations	Conclusion and Rating
Name: Identifying chronic heavy alcohol use in emergency general surgery patients: a pilot study. **Author:** Matar, M. M., Jewett, B., Fakhry, S. M., Wilson, D. A., Ferguson, P. L., Anton, R. F., & Sakran, J. V. **Date:** September 2017 **Objective:** The main purpose of this study was to determine the percent of elective general surgery (ESG) patients with chronic heavy alcohol (CHA) use [as indicated by elevated carbohydrate-deficient transferrin (carbohydrate-deficient transferrin)], and the relationship between carbohydrate-	91 EGS patients aged > 21 years admitted to the general surgery inpatient service of a tertiary hospital from July 2014 to June 2016 were exanimated in this study. The study was conducted in South Carolina. Eligible subjects were, evaluated in the emergency department (ED), and admitted for biliary disease, gastrointestinal hemorrhage, diverticular disease, soft tissue infection, pancreatitis, small bowel obstruction, appendicitis, incarcerated hernia, abscess, hollow viscus perforation, ischemic colitis, volvulus, or other abdominal catastrophes.	The study consisted of a prospective observational cohort study. Blood was drawn within the first 24 hours of admission, and as tested for carbohydrate-deficient transferrin, medical records were reviewed for demographic and medical data, and an AUDIT was performed prior to discharge. To determine 30-day readmission, the medical record was reviewed to capture postdischarge ED or inpatient admissions to the same facility. To determine admission to other facilities, we attempted to contact each patient 1 month postdischarge. A 2×2 table was created to establish the relationship between AUDIT and carbohydrate-deficient transferrin, and determine sensitivities and specificities. A positive AUDIT was defined as a score greater than or equal to 8, and a positive serum carbohydrate-deficient transferrin as greater than 1.7. Demographic data and health histories were collected. Due to the few patients with a positive carbohydrate-deficient transferrin, patients with either a positive AUDIT or carbohydrate-deficient transferrin level were compared with the remaining cohort. Statistical tests included the X^2 test of homogeneity for categorical variables, Wilcoxon rank sum test for	There were 84 participants with both carbohydrate-deficient transferrin levels and AUDIT scores collected, six with a missing carbohydrate-deficient transferrin and one with a missing AUDIT. Of those with no missing values, three had both an elevated carbohydrate-deficient transferrin level and an elevated AUDIT score. When accepting that a positive carbohydrate-deficient transferrin indicates CHA use, the study found the sensitivity and specificity of AUDIT for CHA use to be 75.0% and 86.3%, respectively. Among the 91 participants with either positive AUDIT or positive CDT, 16 (17.6%) were positive for hazardous or harmful drinking 7 participants (7.7%) experienced complications during their hospital stay, which consisted of urinary retention, arrhythmia, kidney injury, altered mental status, and colostomy necrosis.	**Strengths:** -Inclusion and exclusion criteria included. -Informed consent was received. - carbohydrate-deficient transferrin level measurements were performed at the Clinical Neurobiology Labs at Medical University of South Carolina with a state-of-the-art, high-performance liquid chromatography assay that is recognized by the International Federation of Clinical Chemistry as a candidate reference method. -Follow up was used. **Limitations:** -Weak design. -Convenience sampling used. -Small sample. -Low response rate (46.7%) leading to a potentially biased sample. -Failed to show any statistical significance between drinking and postoperative complications.	Additional research is needed to examine the impact of CHA use in larger cohorts of EGS patients, as well as the utility of routine carbohydrate-deficient transferrin testing. **PHAC (2014) rating:** Weak in design and quality.

deficient transferrin and AUDIT. Secondary aims included comparing the characteristics of EGS patients with and without CHA use, and evaluating the association of CHA use with negative clinical outcomes.	continuous variables, and Spearman rank correlation to compare carbohydrate-deficient transferrin and AUDIT, and were conducted using Stata V.13. Outcome variables of interest included presence of complications, hospital length of stay, and ED or inpatient readmission within 30 days of discharge.	19 (20.9%) participants were admitted to an ED or hospital within 30 days postdischarge.

Literature Summary Table for Tsai et al. (2011).

Name, Author, Date, Objective	Sample/Group Size, Setting Characteristics	Design and Methodology	Key Results and Findings	Strengths and Limitations	Conclusion and Rating
Name: Alcohol training program improves Chinese nurses' knowledge, self-efficacy, and practice: A randomized controlled trial. **Author:** Tsai, Y. F., Tsai, M. C., Lin, Y. P., Weng, C. E., Chou, Y. L., & Chen, C. Y. **Date:** February 2011 **Objective:** The purpose of this study was to examine the effects of an alcohol training program on	Data in this study was collected during 2009. Two medical centers and four regional hospitals were first randomly selected from all areas of Taiwan to be included in this study. One medical center and two regional hospitals were randomly selected as the experimental group, and the other three institutions served as the control group. Since most patients with alcohol problems are seen in the Emergency Department (ED), psychiatric, and gastrointestinal (GI) medical-surgical units, nurses working in these units (including inpatient and outpatient) were selected within each hospital. In the experimental group, 230 nurses agreed to participate, but 18 did	This study was a randomized controlled clinical trial with 1- and 3-month posttests. Data were collected by a self-report questionnaire that included scales for measuring knowledge, self-efficacy, and clinical practice, as well as a demographic form. The questionnaire was derived from the literature and the authors' clinical experiences. An 8-item knowledge scale was used to measure nurses' knowledge about impacts of high-risk drinking on a person's health, the definition of hazardous alcohol use, signs of alcohol dependence, prevalence of drinking problems among hospitalized patients, content of the brief alcohol intervention, and the role of health care providers in alcohol assessment and intervention An 8-item self-efficiency scale was used to measure nurses' self-efficacy about assessing, intervening, transferring, and recording patients' alcohol problems. An 8-item clinical practice scale was used to measure nurses' actual performance in assessing, intervening, transferring, and recording patients' alcohol problems. Demographic information was also obtained from nurses.	At pretest, the average knowledge scores in the experimental (3.3 ± 1.0) and control groups (3.3 ± 1.1) did not differ significantly ($t = -0.14$, df = 393, $p = 0.89$). In both groups, the correct answer rate was below 70% except for "impacts of high-risk drinking on a person's health" and "signs of alcohol dependence." At the 1-month posttest, the average knowledge scores in the experimental and control groups were 5.7 ± 1.7 and 3.3 ± 1.0, respectively. At the 3-month posttest, the average knowledge scores in the experimental and control groups were 6.7 ± 1.5 and 3.3 ± 1.0, respectively. These scores were shown to differ significantly by univariate ANOVA ($F = 665.5$, df = 1, $p < 0.01$) after controlling for covariates of pretest knowledge score, work unit, clinical nursing ladder level, having school education about alcohol, and attending in-service course about alcohol. The correct answer rate on this knowledge scale was 80% for the experimental group. These results indicate that after controlling for covariates, knowledge scores significantly increased for participants in the experimental group at the 1- and 3-month posttests, but not for the control group.	**Strengths:** -Strong research design. -Randomization was used in choosing hospitals. - The content validity of the questionnaires was verified by five experts. -Use of control group. -Ethical approval received. - To avoid contamination, the training program was administered only by an experienced, master's-prepared psychiatric nurse, and all data were collected by research assistant who was blinded to nurses' group assignment. -Data was coded, and participant confidentiality was protected. **Limitations:** -Nurses who wished to participate were asked to volunteer. -No other similar literature to compare results to.	This study developed an alcohol training program that improved not only nurses' knowledge at the 1- and 3-month posttests, but also their self-efficacy and clinical practice scores at the 3-month posttest. This program could be used to enhance nurses' alcohol knowledge, self-efficacy, and clinical practice. **PHAC (2014) rating:** Strong in design and quality.

Taiwanese nurses.	not complete the 1-month posttest, and 21 did not complete the 3-month posttest. In the control group, 228 nurses agreed to participate, but 11 did not complete the 1-month posttest and 13 did not complete the 3-month posttest	The training program consisted of an introduction to alcohol, factors influencing alcohol drinking, impacts of high-risk drinking on a person, as well as an introduction to and practice in administering the AUDIT and brief alcohol intervention. The program also discussed Taiwanese nurses' perceived barriers and facilitators to intervening for problem alcohol use (materials are available upon request). The program's teaching strategies included lecture, discussion, demonstration, practice, role-playing, and sharing experiences. Descriptive statistics, t-tests, chi-square, and ANOVA was used in statistical analysis, using SPSP.	Most nurses in the experimental group reported increasing their practice of assessing, intervening, transferring, and recording patients' alcohol problems, except for using the AUDIT to screen patients' drinking problems. These results indicate that after controlling for covariates, clinical practice scores at the 3-month posttest increased significantly for participants in the experimental group, but not for the control group. Using the AUDIT to screen patients was rated as the worst item on both the self-efficacy and clinical practice scales, even after receiving the training program.	-Further studies are needed to measure the effects of alcohol training at 6 or 12 months. -Data were obtained using self-report measures.

Literature Summary Table for Mueller, Schumacher, Wetzlmair, and Pallauf (2015).

Name, Author, Date, Objective	Sample/Group Size, Setting Characteristics	Design and Methodology	Key Results and Findings	Strengths and Limitations	Conclusion and Rating
Name: Screening questionnaires to identify problem drinking in the primary care setting: a systematic review. **Author:** Mueller, G., Schumacher, P., Wetzlmair, J., & Pallauf, M. **Date:** November 2015 **Objective:** The main objective of this systematic review was to investigate the validity and reliability of alcohol screening questionnaires to identify problem drinking as a secondary prevention measure.	The search of the literature was conducted through online databases between September and December 2014 in. Germany speaking countries. Inclusion criteria included the use of alcohol-screening instrument compared to a gold standard, primary care setting, and adults over 18 years. Eight diagnostic accuracy studies and three systematic reviews were included in this review.	The systematic literature review was performed based on the data processing steps by Kunz et al. - identification with selection and evaluation—which helped to identify the relevant studies. The literature describes different psychometric properties for numerous alcohol-screening instruments for the identification of risky or harmful alcohol consumption and alcohol use disorders. Two of the authors searched EBSCO-Host in the databases MEDLINE, CINAHL, and Academic Search Premier independently. PsychINFO, PubMed, BASE – Bielefeld Academic Search were also checked for relevant studies. Reference lists of selected articles were manually searched for additional relevant sources, and German study authors were contacted to obtain further studies. Following the independent literature search, the 16 identified diagnostic studies were reviewed with the Statement for Reporting Studies of Diagnostic Accuracy (STARD) checklist by each author. In case of disagreement, an additional person was consulted.	11 studies were included in this review. **Cut down, annoyed, guilty, eye-opener (CAGE):** - It demonstrated adequate validity for detecting harmful alcohol use or dependence in different patient populations (medical, surgical, psychiatric inpatients and ambulatory medical patients). Not a valid instrument for risky drinking, white women, and college students. Not tested in Germany. **Michigan Alcoholism Screening Test (MAST):** -MAST it is not effective in screening for at-risk, it is face valid and results depend on the personal motivation to report drinking behavior; it is also validated for the psychiatric setting not general use. **Luebeck Alcohol Dependence and Abuse Screening Test (LAST):** - LAST has been tested for its predictive validity and internal consistency in a general practice and clinical setting as well as with a general population sample. It is sensitive for the screening of current alcohol dependence at its recommended cut-off at two points. **Alcohol Use Disorders Identification Test (AUDIT):** - The AUDIT is best used in primary care, for elderly patients, and patients in general hospitals. - It is validated for the identification of at-risk drinking and the risk for an alcohol use disorder in the adult population - The AUDIT performed excellent in identifying at- risk drinking and alcohol use disorders. -There are multiple variations of the AUDIT. However, the original has shown to be the best. **Brief Alcohol Screening for Medical Care (BASIC)**	**Strengths:** -Examined only gold standard alcohol screening. -Two independent searches conducted. - For each identified alcohol-screening instrument, a separate literature search was conducted to ensure that all articles on their validation had been retrieved. -Inclusion and exclusion criteria included. **Limitations:** - the inclusion criteria had to be modified to ensure access to further publications, using older studies, and	Guidance and training on validated alcohol-screening instruments and information on the content of brief intervention is currently missing in German-speaking countries. Both the AUDIT and BASIC have proven to be excellent options for screening for alcohol withdrawal in acute care facilities in German speaking countries. **PHAC (2014) rating:** Medium in design and quality.

-It is a brief screening instrument that can be implemented into the daily routine of primary healthcare. -It is an efficient screening instrument for the medical setting and seems to perform better than the AUDIT-C and LAST, and is able to detect drinking as well as the AUDIT.	therefore the findings may not be up to date.

Literature Summary Table for Meneses-Gaya, Zuardi, Loureiro, and Crippa (2009).

Name, Author, Date, Objective	Sample/Group Size, Setting Characteristics	Design and Methodology	Key Results and Findings	Strengths and Limitations	Conclusion and Rating
Name: Alcohol Use Disorders Identification Test (AUDIT): An updated systematic review of psychometric properties. **Author:** Meneses-Gaya, C., Zuardi, A. W., Loureiro, S. R., & Crippa, J. S. **Date:** June 2009. **Objective:** The main objective of the study was to identify, literature on the psychometric properties of the AUDIT published over an 8-year period, in order to analyze validity and reliability characteristics.	A systematic search of the literature published up to January 2009 was carried out using the following electronic databases: Medline; LILACS, PsycINFO, Science Citation Index Expanded, BIOSIS Previews, Cumulative Index to Nursing and Allied Health Literature (CINAHL), MEDION, Scopus, and SciELO. The following search terms were used: “alcohol”, “Alcohol Use Disorders Identification Test”, and “AUDIT”.	The present study aimed to identify, through searching in the literature, studies on the psychometric properties of the AUDIT. In the first step, one reviewer assessed the title and abstract of all publications that were retrieved using the inclusion and exclusion criteria. The searches retrieved 807 potentially relevant publications; 760 publications were excluded and 47 studies were analyzed.	Over the last 10 years, two studies that validated and compared the AUDIT to other screening instruments, in adolescents and in different contexts, were identified. They showed at a cut-off point of nine, the AUDIT yielded sensitivity of .76 and specificity of .79. Both of these studies recommend the use of the AUDIT, but raise objections in terms of administration time and the fact that it does not screen for other drugs, which are usually associated with alcohol consumption. Some studies that investigated the validation of the AUDIT in samples of university students identified that lower sensitivity and specificity values are obtained when the traditional cut-off point is used. In an addition two studies the authors recommend a cut-off point of five to screen for hazardous use and a cut-off point above seven for misuse and dependence. The area under the receiver operating characteristic curve was above .93. The AUDIT revealed high performance in these studies, confirming its validity as an AUD screening instrument among university students. Studies point out the need for different cut- off points for men and women, since sensitivity is reduced when the standard AUDIT cut-off point is used for females. In one study, patients who scored eight or more on the AUDIT were monitored and treated. Of the 98 patients screened with the AUDIT, 17 experienced significant alcohol withdrawal symptoms, whereas none of the patients with scores lower than eight presented withdrawal symptoms. In another study the CAGE, and the AUDIT were used to identify alcohol dependence, in a sample of emergency room patients. In comparison with the CAGE, the sensitivity of the RAPS4 and the AUDIT was significantly higher, but specificity was lower for men. Three studies that evaluate test-retest reliability with the same interval (one month)	**Strengths:** -Inclusion and exclusion criteria was included. -Studies in multiple languages used. -Studies included in the systematic review were of moderate – strong design. -Large number of studies included in the review. -Through review of AUDIT included. **Limitations:** -Minimal information regarding how articles were chosen.	The results presented in this review confirm the efficiency of the AUDIT in screening harmful use, misuse, and addiction to alcohol. Such effectiveness was confirmed for the original version as well as for abbreviate versions and versions adapted to other languages and in different settings and cultures. **PHAC (2014) rating:** Moderate in design and quality.

have been identified, and found the AUDIT to have a high reliability.

Ten studies that evaluated the internal consistency of the AUDIT were identified. In these studies, the mean value of Chronbach's alpha was 80, indicating high internal consistency.

Seven studies examined the factor structure of the AUDIT using principal components as well as exploratory and confirmatory factor analysis, and revealed that a two-factor solution is preferable - a consumption factor (items 1–3) and an adverse consequences of drinking factor (items 4–10).

The AUDIT-C also showed high sensitivity and specificity in screening for alcohol-related problems through a variety of studies. The AUDIT-C with a cut-off score of three, showed sensitivity and specificity of .90, and 91.5% of participants were correctly classified using the AUDIT full as a comparative measure in a sample of female detainees. The AUDIT-C was excellent in identifying AUD in White, African American, and Hispanic populations.

The FAST, another abbreviated version, was evaluated using the AUDIT as the gold standard, and demonstrated screening for subjects with alcohol-related problems in a quick and objective way.

Many studies on the validation of abbreviated versions [AUDIT-3, AUDIT-C, AUDIT- PC, and m-FAST (modified FAST)] of the AUDIT have been identified. These versions are extremely helpful, since they allow for faster screening for AUD, with high sensitivity.

Research also highlighted AUDIT's effectiveness in English speaking countries as well as countries with another first language including China, France, rural Vietnam, German, Belgium, Spain, Brazil, and Switzerland. The test-retest reliability of the AUDIT has been evaluated in many studies, and results show there are high rates of reproducibility.

Literature Summary Table for Bradley et al. (2007).

Name, Author, Date, Objective	Sample/Group Size, Setting Characteristics	Design and Methodology	Key Results and Findings	Strengths and Limitations	Conclusion and Rating
Name: AUDIT-C as a brief screen for alcohol misuse in primary care. **Author:** Bradley, K. A., DeBenedetti, A. F., Volk, R. J., Williams, E. C., Frank, D., & Kivlahan, D. R. **Date: July 2007** **Objective:** The purpose of this study was to evaluate the AUDIT-C as a brief screening questionnaire for alcohol misuse that balanced sensitivity and specificity for men and women as well as setting-specific screening thresholds.	392 male and 927 female adult outpatients who were seen at an academic family practice clinic 1993 to 1994 were included in the study. The study used secondary data from a prospective validation study of alcohol screening questionnaires in Galveston, TX.	The study consisted of a cross sectional validation study which compared screening questionnaires with standardized interviews in outpatients. The AUDIT-C, full AUDIT, self-reported risky drinking, AUDIT question #3, and an augmented CAGE questionnaire were compared with an interview primary reference standard of alcohol misuse. This study also evaluated the performance of the AUDIT-C for identifying patients with alcohol use disorders, as well as for identifying patients who reported any symptom of an alcohol use disorder in the past year, and compared the performance of the AUDIT-C with that of other validated alcohol screening questionnaires, including the well- known CAGE questionnaire. Randomly selected patients were recruited by telephone the day before their appointments or, for the 30% who could not be contacted by telephone, in the waiting room before their visit. Patients were recruited and interviewed by 1 of 4 non-clinician interviewers. Patients completed written questionnaires before their appointments and in-person interviews after the appointments. The written questionnaire included socio-demographic questions and the interview included the Alcohol Experiences module of the Alcohol Use Disorders and Associated Disabilities Interview Schedule (AUDADIS) and 4 questions to	A total of 128 men and 177 women met the criteria for risky drinking (alcohol misuse), whereas 66 men and 83 women met the criteria for alcohol abuse or dependence (alcohol use disorders) in the past year. Based on the AUROC curves, the 3-item AUDIT-C performed as well as the full 10-item AUDIT, and significantly better than self-reported risky drinking, AUDIT question #3 alone, or the augmented CAGE questionnaire (p-values all <0.001), especially in women. Self-report of risky drinking on AUDIT-C questions #1 to 3, AUDIT question #3 alone, and the augmented CAGE questionnaire had relatively high sensitivities and specificities for alcohol misuse in men but lower sensitivities in women. The AUDIT-C had a greater AUROC curve than either self- reported risky drinking or the augmented or standard CAGE questionnaires (p-values all <0.005). The AUDIT-C performed as well as or better than 2 longer alcohol screening questionnaires for alcohol misuse: the full AUDIT and CAGE questionnaire.	**Strengths:** -Large sample size. -Ethical approval obtained. -Randomization was used in sampling. -Interviewers were trained. -Patients were approximately evenly distributed across 3 racial/ethnic groups: African American, Hispanic, and white - AUDADIS interview used to measure DSM-IV alcohol use disorders has proven reliability and validity -Limited possibility of sampling bias -recruitment rate of 91% **Limitations:** - This is the first study to validate the AUDIT-C as a screen for alcohol misuse or alcohol use disorders in a U.S. primary care sample, therefore more research is needed to verify the results. -The interview measure of risky drinking was based on 4 questions about alcohol consumption, these questions might have under- estimated alcohol consumption -The AUDIT-C followed the diagnostic interview and CAGE,	This study found that the AUDIT-C was an excellent screening questionnaire for alcohol misuse or alcohol use disorders in a large ethnically diverse U.S. primary care sample, when compared to the AUDIT and CAGE questionnaires. **PHAC (2014) rating:** Strong in design and quality.

assess alcohol consumption, followed by the CAGE questionnaire and the 10-item AUDIT.

The AUDIT-C and other screening tests were compared with the 3 reference standards in gender-stratified analyses. The main reference standard was alcohol misuse in the past year, and the secondary reference standards were:
(1) an alcohol use disorder in the past year
(2) any symptom of an alcohol use disorder in the past year.

Receiver operating characteristic (ROC) curves plotted sensitivity versus 1-specificity, and areas under the curves and their 95% confidence intervals (CI) were determined using chi square statistic in STATA and SPSS. Sensitivity and specificity were calculated for each cut-point. Positive and negative likelihood ratios were calculated at each cut- point, with 95% CI. For each combination of prevalence and cost–benefit, we determined the AUDIT-C screening threshold nearest the point on the ROC curve with the calculated tangent.

The AUDIT-C was also an effective screening test for identifying patients with DSM-IV alcohol use disorders or any symptom of an alcohol use disorder in the past year, performing better than the CAGE questionnaire.

This study suggests that lower AUDIT-C screening thresholds should be used for women than for men to maximize sensitivity and specificity simultaneously.

and some studies have suggested that such an order of administration might have lowered the measured sensitivity of the AUDIT-C
-Study sampling took place in a single location in Texas
-Screening questionnaires were administered by researchers not clinical personnel.

Literature Summary Table for Dhalla and Kopec (2007).

Name, Author, Date, Objective	Sample/Group Size, Setting Characteristics	Design and Methodology	Key Results and Findings	Strengths and Limitations	Conclusion and Rating
Name: The CAGE Questionnaire for alcohol misuse: A review of reliability and validity studies. **Author:** Dhalla, S., & Kopec, J. A. **Date:** February 2007 **Objective:** The main objective of this study was to review the reliability and validity of the CAGE questionnaire across different patient populations and discuss its role in the detection of alcohol-related problems.	The authors retrieved article 279 abstracts from Medline, 48 from Embase, and 131 from Psychinfo. Articles were excluded if they were not reliability or validity studies. Articles were included if they met the following inclusion criteria: 1) published in a peer-reviewed journal. 2) written in English. 3) reported reliability or validity measures. 4) used a proper gold standard for validity assessment.	The study consisted of a systematic review that used the Cochrane Database for Systematic Reviews, Medline (1966 to present), Embase (1980 to present), and Psychinfo using the following search terms: "CAGE", "CAGE questionnaire", "psychiatric status rating scales" and "alcohol". No systematic reviews were found on the Cochrane Database. Search of the other databases yielded one systematic review and one meta-analysis, on different aspects of CAGE. Three articles on reliability and 16 on	Two studies assessed modifications in the format of CAGE. In one study, a version of CAGE with a general introductory statement ("Please tell me about your drinking") produced a higher sensitivity than a questionnaire that included a more specific, close ended introductory question ("How much do you drink").A second study found no influence of either the wording of the introduction or question sequence on the sensitivity of the instrument. Test-retest reliability of CAGE (test-retest interval of 7 days) was 0.80 in psychiatric outpatients and 0.95 in a community sample with no psychiatric history, both with alcohol use disorders. In a U.S. study among clients of a drinking and driving treatment program, the correlations were 0.62 with AUDIT and 0.70 with SMAST 22. Scores on CAGE correlated 0.48 with the AUDIT in a large community sample in the UK. In a meta-analysis of 10 studies, for a cutoff 2, the sensitivities were 0.87 in hospital inpatients, 0.71 in primary care patients, and 0.60 in ambulatory medical patients. An additional review showed CAGE to be superior to AUDIT in terms of screening for alcohol abuse/ dependence in a primary care population, however not for detecting heavy drinking. This was complemented by an another study in the review that showed the sensitivities for CAGE, augmented CAGE, and AUDIT were 0.49, 0.70, 0.57, and the specificities were 0.75, 0.68, and 0.92, respectively. Using the alcohol module of the Schedules for Clinical Assessment in Neuropsychiatry (SCAN) as the gold standard, this new instrument, called the Luebeck Alcohol Dependence and Abuse Screening test (LAST), demonstrated a higher sensitivity than with the standard CAGE.	**Strengths:** -Only strong studies were included in the review -Study included information on reliability, validly, and sensitivity of the CAGE in a variety of settings. -Addressed studies comparing CAGE to other screening tools. -Inclusion and exclusion criteria included. **Limitations:** -Limited information on process for choosing articles for review. -comparisons between instruments across studies are difficult to interpret due to methodological differences while head-to-head comparisons are relatively rare. -bias due to non-response was a potential problem. -the data may have been influenced by measurement errors due to social desirability, interviewer bias, question misinterpretation, and use of proxy respondents. -there was lack of sufficient representation of women, persons, persons <18, ethnic minorities, and the elderly.	CAGE is short, practicable, and easily to use and apply in clinical practice. However, practitioners should be aware of its limitations when interpreting the results. **PHAC (2014) rating:** Medium in design and quality.

validity of CAGE were found and used.	**Overall**: The CAGE questionnaire has been the most widely used instrument for detecting alcohol abuse / dependence. CAGE has demonstrated high test-retest reliability (0.80-0.95), and adequate correlations with other instruments (0.48-0.70). It also appears to have adequate validity for detecting alcohol abuse/dependence in medical and surgical inpatients, psychiatric inpatients, and ambulatory medical patients. It has not performed well in white women, prenatal women, and college students, and is not recommended as a screening test for heavy or hazardous drinking. Changing the cutoff score from 2 to 1 resulted in greater test sensitivity but lower specificity, as expected. Alternative screening questionnaires to CAGE include AUDIT and MAST. AUDIT is currently the only instrument yielding high sensitivities and specificities for less severe forms of drinking. MAST is too long for routine use in clinical practice and more information is needed on the properties of its abbreviated versions (BMAST and SMAST) in different populations.

Literature Summary Table for Duby, Berry, Ghayyem, Wilson, & Cocancour (2014).

Name, Author, Date, Objective	Sample/Group Size, Setting Characteristics	Design and Methodology	Key Results and Findings	Strengths and Limitations	Conclusion and Rating
Name: Alcohol withdrawal syndrome in critically ill patients: Protocolized verus nonprotocolized management Author: Duby, J.J., Berry, A.J., Ghayyem, P., Wilson, M.D., & Cocanour, C. Date: December 2014 Objective: The purpose of this study was to compare patient outcomes in critically ill patients with AWS, regardless of their admission ICU diagnosis, who were treated with this protocolized approach versus	The study included adult patients with AWS admitted to the ICU at an urban, academic tertiary referral center in California. Subjects in the pre-group were identified from electronic medical records by automated reports.	The study design consisted of a retrospective pre-post design. Patients in the pre-intervention group (PRE) were treated in a nonprotocolized fashion and typically received continuous infusions or scheduled doses of benzodiazepines (BZD) per physician preference. Patients in the post-intervention group (POST) were given escalating doses of diazepam and phenobarbital according to an AWS protocol, which was available via an electronic order set. Patients received symptom-triggered doses of diazepam every 15 minutes to 30 minutes until target sedation level was achieved. Nurses were directed to continue escalating diazepam doses up to a maximum of 120 mg. Phenobarbital was included in the protocol as an adjunct to be given every 30 minutes in a similar dose escalation fashion up to a maximum of 240 mg. Subjects in the PRE group were identified from electronic medical records by automated reports capturing patients by DRG International Classification of Diseases, unspecified alcohol dependence, and alcohol dependence with continuous drinking behavior. Subjects for the POST group were consecutively admitted patients who received orders for the AWS order set. A search of the electronic medical record for the concurrent use of thiamine and folate was used to supplement and capture potential patients in both PRE and POST groups.	There were 135 episodes of AWS in the 132 critically ill patients. The majority of these patients were treated by the medical ICU (approximately 50%) or trauma surgery services (approximately 30%). The remaining patients were treated by orthopedic surgery, ENT, burn, transplant, cardiology, neurosurgery, and general medicine services. There was a significant difference between the two groups in the primary outcome of ICU length of stay (LOS), 9.6 (10.5) days in the PRE group versus 5.2 (6.4) days in the POST group ($p = 0.0004$). There was weak evidence of an effect due to the use of the protocol ($p = 0.096$). There was overwhelming evidence of an effect due to duration of sedation. The ICU LOS increased 0.7 days for each additional day of sedation ($p < 0.0001$). There was a substantial decrease in mean BZD use between the two groups, with POST group patients requiring less than a third of total BZD compared with the PRE group ($p = 0.0002$). Very few patients required phenobarbital in either the PRE or the POST group, and the medians were zero for each. There was very strong evidence of an effect due to BZD on the number of ventilator-free days. There was also strong evidence that patients	**Strengths:** -Compared pre and post intervention. -Ethical approval obtained. -Inclusion and exclusion criteria provided. -The study controlled for explanatory variables through regression analysis for the primary and secondary outcomes. **Limitations:** -Study only included a single center -Weak retrospective design. -No randomization in participant selection. - Potential differences between groups may not have been identified or controlled for.	This study suggests that a protocolized treatment approach using early, aggressive, symptom-triggered dosing of diazepam and phenobarbital is associated with a decreased need for intubation, less time on ventilation, decreased ICU LOS, reduced BZD exposure, and possibly decreased mortality. PHAC (2014) rating: Medium in design and quality.

a nonprotocolized approach of benzodiazepine (BZD) administration.	Patients were included if AWS was identified as a diagnosis (primary or secondary) in the history and physical or a progress note. The primary outcome measure was ICU length of stay. Secondary outcomes included mean and median BZD use, mean and median phenobarbital use, duration of sedation, requirement for mechanical ventilation (MV), ventilator-free days, and requirement for MV because of AWS. The selection criterion used was the optimized Schwarz Bayesian information criterion. For the binary variables, death, requiring intubation, seizures while admitted, requiring continuous sedation, multiple logistic regression was fit using a SAS software backward selection procedure LOGISTIC. The selection criterion used was a *p* value of less than 0.05.	admitted primarily for AWS were at higher risk for intubation—due to AWS—than patients admitted for another critical illness ($p = 0.04$). Patients in the PRE group were at a greater risk for intubation than POST group patients ($p = 0.02$). The substantial reduction in ICU LOS and duration of sedation between the two groups suggests that early, aggressive, symptom-triggered dosing of diazepam and phenobarbital can obtain rapid relief of symptoms, lead to shorter courses of therapy, and reduce the need for intubation.

Literature Summary Table for Kip et al. (2008).

Name, Author, Date, Objective	Sample/Group Size, Setting Characteristics	Design and Methodology	Key Results and Findings	Strengths and Limitations	Conclusion and Rating
Name: New strategies to detect alcohol use disorders in the preoperative assessment clinic of a German university hospital. **Author:** Kip, J., Neumman, T., Jugel, C., Kleinwaecther, R., Weiss-Gerlach, E., Mac Guill, M., & Spies, C.D. **Date:** August 2008 **Objective:** The primary aim of this study was to compare the detection of AUDs by anesthesiologists in a large preoperative assessment clinic with that by computerized	The study was conducted in the preoperative assessment clinic of the Charité University Hospital, Campus Charité Mitte and Campus Virchow-Klinikum, Berlin, Germany, between February and June 2006. 1,921 consecutive patients were enrolled in the study. 1144 declined to participate. 365 of these patients did not complete the questionnaire, and these patients were excluded	This study was designed as a prospective observational study. Patients were approached before seeing an anesthesiologist in clinic. Patients' demographic parameters and basic characteristics as well as sex, age, weight, height, and smoking habits were documented. Patients were then asked to complete a lifestyle assessment questionnaire on a portable computer. The 10-item AUDIT was implanted within the computerized questionnaire. A mouse-only technique was used; keyboard typing was not required. To prevent the accidental skipping of questions, each question was displayed at least 1 seconds after completion of an item. If the patient chose the option "never" on the first question of the AUDIT ("How often do you have a drink containing alcohol?"), the electronic interview ended. The AUDIT score ranges from 0 to a maximum of 40 points. Existence of an AUD was defined as an AUDIT score of >/ 8 for men or an AUDIT score of >/ 5 points for women.	The total computer-based prevalence rate for AUD was 18.1% (CI, 16.3–20.1; 282 of 1,556), equally distributed between male and female patients. Patients with an AUD were significantly younger and were more frequently smokers than patients without an AUD. The overall detection rate based on the anesthesiologists' preoperative assessments was 6.9% (CI, 5.7–8.2; 107 of 1,556), compared with a rate of 18.1% (CI, 16.3–20.1; 282 of 1,556) using the computerized questionnaires. Anesthesiologists rated 10.8% of men (CI, 8.8–13.2; 81 of 747) and 3.2% of women (CI, 2.2–4.6; 26 of 809) ($P < 0.001$) as positive, compared with 18.9% of men (CI, 16.2–21.8; 141 of 747) and 17.4% of women (CI, 14.9–20.2; 41 of 809) who were positive using the computer version. Patients aged ≥ 50 yr were significantly more frequently detected by the anesthesiologists than were younger patients (aged < 50 yr) ($P < 0.001$). The subgroup of AUDIT-positive patients with the highest detection rate by anesthesiologists (36.7%) was those with daily or near daily alcohol consumption (90 of 282). Anesthesiologists detected 17.2% of AUDIT-positive patients with hazardous drinking behavior; 20% of those reporting alcohol-related harm and 25.2% of	**Strengths:** -Ethical approval obtained. -All participants gave informed consent. -Physician blinding was used. **Limitations:** -Almost half of invited participants declined to be involved. - The AUDIT score has not been subjected to an external validation. -In busy settings such as the emergency department or preoperative assessment clinic, quick methods for the detection of at-risk behavior are realistically more likely to achieve high levels of implementation, as opposed to the AUDIT. - It might be possible that among the nonparticipating population and	The study showed that during preoperative assessment the use of electronic AUDIT increased the positive findings of AUD from 1 in 14, to 1 in 6 patients. These observations in a preoperative assessment clinic illustrate that strategy implementation and barrier analysis are urgently required if high levels of compliance with evidence-based algorithms are to be achieved. **PHAC (2014) rating:** Medium in design and quality.

self-assessment of the AUDIT.

Secondary outcome measures were to compare the action taken by anesthesiologists upon a finding of an AUD with the actions recommended in widely available best-practice guidelines.

retrospectively from the data analysis.

After completing the questionnaire, patients went to see the anesthesiologist on duty for preoperative assessment.

The anesthesiologist did not have access to the results of the computer assessment, and was asked to perform their own screening for alcohol use.

The anesthesiologists were considered to have detected an AUD if they had ticked a field marked “alcohol” on the preoperative assessment sheet or if they made a specific referral to any form of AUD.

Statistical analyses were performed using SPSS and included: frequencies and percentages or as median and range of the 25th–75th percentiles. The nonparametric Mann–Whitney U test, confidence intervals (CIs), the chi-square test, the Fisher exact test was used and the linear-by-linear association test.

$P < 0.05$ was considered statistically significant.

patients with symptoms of dependence according to the AUDIT criteria were detected.

Preventive measures were not advised in any of the patients detected by the preoperative assessment clinic anesthesiologists.

1 in 6 patients had an AUD according to their computerized AUDIT scores, anesthesiologists detected only 1 in 14 patients during the routine preoperative assessment. Furthermore, only 17.4% of the AUDIT-positive patients were detected during the physicians’ preoperative assessments.

In our study, the prevalence rate of AUDs using AUDIT was similar in women (17.4%) and men (18.9%)

These results also emphasize the fact that the use of (computer-based) algorithms applied to every patient for the identification of AUDs is an effective means of tackling biases of the underestimation of AUD in younger patients and women of all ages.

among those who started but did not complete the computer-based questionnaire, the prevalence rate of AUDs is unusually high or low.

Literature Summary Table for Maldonado et al. (2012).

Name, Author, Date, Objective	Sample/Group Size, Setting Characteristics	Design and Methodology	Key Results and Findings	Strengths and Limitations	Conclusion and Rating
Name: Benzodiazepine loading versus symptom triggered treatment of alcohol withdrawal: A prospective, randomized clinical trial. **Author:** Maldonado, Nguyen, Schader, & Brooks **Date:** December 2012 **Objective:** The main objective of this study was to compare the efficacy of a benzodiazepine loading versus a symptom-triggered protocol in the management of alcohol withdrawal,	The study was conducted over a 12-month period at two tertiary care medical facilities (Stanford University Medical Center and the Palo Alto Veterans Affairs Healthcare System) in patients who presented with alcohol withdrawal symptoms. 47 patients were included in the study all of whom reported history of alcohol withdrawal or dependence, age 18 or older, who had consumed alcohol within 24 h of admission and had the ability to consent to participate in the study.	The study was an open, prospective, randomized clinical trial. Patients were randomized by number draw to either a symptom-triggered or loading benzodiazepine treatment protocol. Loading protocol: On day 1: Load with 20mg Diazepam PO Q2H x 3doses. OR 10mg IV Q1H x6 doses. Additional doses: 10mg PO/IV Q2H PRN for residual symptoms. Symptom triggered-Protocol: Lorazepam 1-2mg PO/IV Q2H PRN for active withdrawal symptoms. The primary outcome measure was the baseline scores and rates of change of the CIWA-Ar. Throughout their inpatient stay, patients in both groups were regularly evaluated by the nursing staff using the CIWA-Ar. Additional medication could only be administered if the patient's CIWA score was elevated or if vital signs exceeded established parameters. Patients were also blindly checked with the CIWA-Ar 3 times a day.	24 patients received the "symptom-triggered" intervention, while 23 patients received the loading method intervention. The patient sample comprised 46 males and 1 female whose mean age was 51.7 years. Patients were admitted to a variety of services, including addiction treatment services (*N*= 24), psychiatry (*N*= 14), general medicine (*N*= 3), trauma/surgery (*N*= 3) and medical intensive care (*N*= 3). Overall, 55.3% of all study patients were free of withdrawal symptoms within 72 h of admission: 69.6% in the loading group and 41.7% in the symptom-triggered group. However, these results were not statistically significant. For the entire duration of symptoms, the average rate of change of CIWA-Ar score was − 2.3 points per day (S.D. 2.5) for the loading group and − 1.5 points per day (S.D. 1.3) for the symptom-triggered group. Although the rate of change of CIWA-Ar for the loading group was more rapid than that of the symptom-triggered group, the difference did not reach statistical significance (*P* >.05). There was no significant difference in the average total benzodiazepine usage between the two groups (*P* >.05), with 103.8 mg (S.D. 71.5) for the loading group and 92.4 mg equivalents (S.D. 103.5) for the symptom-triggered group.	**Strengths:** -Inclusion and exclusion criteria included. -Participants were randomized. -Informed consent was received. -Staff collecting data were all trained in the CIWA-Ar and other collection methods. - Objective measurements were used and were not subject to experimenter interpretation, reducing bias. **Limitations:** -Small study sample. - Power calculations demonstrated only a 70% chance of detecting an effect. -There was an underrepresentation of women. - Four post-randomization subjects were excluded from regression analysis because of failure by the treatment team to adhere to the treatment protocol. -Unable to use blinding. - Generalizability may be limited due to the majority of patients being Caucasian (85.1%) and male (95.8%).	The study did not reveal any evidence of a clinical advantage for a benzodiazepine-based treatment protocol method (i.e., symptom-triggered versus loading method), demonstrating that both options are effective in the treatment of AWS. Although there was more rapid resolution of symptoms with the diazepam loading protocol in that a greater percentage of patients were free of symptoms within 72 h in the diazepam group, the difference was not statistically significant. **PHAC (2014)**

through a head to head comparison.	Blood pressure, pulse, temperature and respiratory rate measured by the nursing team were recorded at corresponding times. The rates of change were compared using a Student's *t* test, and the effect of covariates was assessed through the use of multiple regressions.	Overall, this study suggests that early, aggressive use of a loading protocol with a long-acting benzodiazepine may improve the initial symptoms of withdrawal more rapidly than the symptom-triggered use of a short-acting agent, but that neither method produces a significant difference in overall rate of improvement and duration of symptoms.	**rating:** Medium in design and quality.

Literature Summary Table for Maldonado et al (2014).

Name, Author, Date, Objective	Sample/Group Size, Setting Characteristics	Design and Methodology	Key Results and Findings	Strengths and Limitations	Conclusion and Rating
Name: The "Prediction of Alcohol Withdrawal Severity Scale" (PAWSS): systematic literature review and pilot study of a new scale for the prediction of complicated alcohol withdrawal syndrome. **Author:** Maldonado, J. R., Sher, Y., Ashouri, J. F., Hills-Evans, K., Swendsen, H., Lolak, S., & Miller, A.C. **Date:** June 2014 **Objective:** The main objective was to address the absence of an effective validated tool to	A total of 10 items were identified as correlated with complicated AWS through a systematic review. During the pilot study, a total of 68 consecutively admitted subjects underwent evaluation with PAWSS.	The development of the PAWSS involved three steps. 1)The authors developed a list of key words related to all forms of and predisposing factors for AWS. Then, they conducted a systematic literature search for clinical factors associated with the development of alcohol withdrawal syndromes (AWS). Cochrane Database of Systematic Reviews, PubMed, PsychInfo, and MEDLINE) were searched for potentially relevant articles published from January 1966 to January 2011. The initial search was independently performed by four members of the research team using the listed databases and scrutinizing these articles' bibliographies for additional pertinent references. The searches were combined, all duplicate articles were removed, and the remaining articles were reviewed. A total of 233 unique articles were found describing factors predictive of AWS. 2) The PAWSS was constructed from the 10 most relevant clinical factors, as per the systematic literature review, associated with the development of AWS. PAWSS consists of three parts: (A) The threshold criteria, whether the patient consumed alcohol during the 30 days prior to admission and/or had a positive blood alcohol level (BAL) on admission, followed by a series of 10 Yes/No questions from (B) patient interview (C) clinical evidence, assessing known risk factors for withdrawal and current clinical status.	Systematic review results: Risk factors for moderate to severe alcohol withdrawal were compiled from the literature review and distilled to 10 risk factors based on supporting evidence, including: 1)**Previous episodes of alcohol withdrawal.** **2)Previous alcohol withdrawal seizures** 3)**History of DT** **4)History of alcohol rehabilitation treatment** 5)**Previous episodes of blackouts** 6)**Associated use of CNS-depressant agents, such as benzodiazepine or barbiturates** 7)**Associated use of other illicit substances** 8)**Recent episode of alcohol intoxication** 9)Existing **blood alcohol level (BAL) on admission to hospital** **10)Evidence of increased autonomic activity** **Pilot Study Results:** Fifty-one subjects screened negative on PAWSS. The remaining 17 patients who endorsed using alcohol within the last 30 days were further assessed with Parts B and C of PAWSS. Out of these 17 patients, 7 had a PAWSS score of 0; 6 had a PAWSS score of 1–3; the remaining 4 had a PAWSS score of 4 or greater. None of the 13 patients with a negative PAWSS score developed complicated AWS, while all 4 patients who had a PAWSS score of 4 or above developed complicated alcohol withdrawal as	**Strengths:** **-**Inclusion and exclusion criteria was listed for the literature review. -The PAWSS was developed based on moderate to strong literature, from the 10 most relevant clinical factors. -Pilot used to test quality of PAWSS after development. -Same resident administered screening in pilot. -Blinding was used. -Ethically approval received. -Developed tool only takes 1 minute to administer. **Limitations:** -Short pilot study. -PAWSS is only in English. -Small sample size. - Patients reporting no alcohol intake during the last 30 days were not asked the full battery of	The results of this pilot study suggest that PAWSS may be useful in identifying risk of complicated AWS in medically ill, hospitalized individuals, however more research is needed for confirmation. **PHAC (2014) rating:** Medium in design and quality.

help identify medically ill patients at risk for development of AWS prior to development of major withdrawal symptoms, and to create and test this tool in practice.	3) After the tool was constructed, a pilot study was conducted using the PAWSS as part of a quality improvement (QI) effort. The pilot was conducted over a 2-week period (February–March 2011) at Stanford Hospital, a tertiary care medical facility. Upon agreement to participate in the study, PAWSS was administered by the same internal medicine resident. All patients were asked the first PAWSS "screening" question. Only those with a positive screen were asked the 10 follow-up questions in a protocoled manner. Standard care was independently delivered to all patients by the internal medicine team (who were blinded to PAWSS scores) and PAWSS results did not influence the treatment course. Close monitoring specifically for AWS and administration of CIWA-Ar were carried out by the primary team when deemed necessary, based on usual standards of care. The research team then retrospectively collected information on all patients enrolled in the study, including demographic information, primary diagnoses, clinical history, CIWA-Ar scores, vital signs, and medication used. Every patient's chart was analyzed retrospectively for evidence of the presence or absence of AWS .	defined by their clinical presentation and/or CIWA-Ar scores. PAWSS score of 4 or above accurately predicted a patient at high risk for the development of moderate to severe AWS. Patients who developed complicated alcohol withdrawal, as predicted by PAWSS, tended to be younger and were more likely to be male, but these differences were not statistically significant. This pilot data translated into 100% sensitivity, specificity, positive predictive value (PPV), and negative predictive value (NPV) of the PAWSS using 4 as the threshold for a positive PAWSS score in identifying those patients who will develop complicated AWS.	PAWSS questions and were assumed to be of low risk, these patients however could have concealed their use.

Literature Summary Table for Ng et al. (2011).

Name, Author, Date, Objective	Sample/Group Size, Setting Characteristics	Design and Methodology	Key Results and Findings	Strengths and Limitations	Conclusion and Rating
Name: Evaluation of an alcohol withdrawal protocol and a preprinted order set at a tertiary care hospital. **Author:** Ng, K., Dahri, K., Chow, I., & Legal, M **Date:** December 2011 **Objective:** The main objective was to assess the efficacy and safety of a combination fixed-scheduled and symptom-triggered benzodiazepine dosing protocol for alcohol withdrawal, relative to usual care, for medical	A total of 159 patients met the inclusion criteria. Assessable data were available for 71 charts from the pre-implementation period and 72 charts from the post-implementation period. Patients were identified through the hospitals inpatient computer system.	The study used a retrospective design. Two study periods were identified: before (October 2005 to April 2007) and after (October 2007 to April 2009) implementation of the protocol. Patients in the post-protocol group had to have been admitted to one of the internal medicine wards where the protocol had been implemented and had to have received at least one dose of benzodiazepine according to the protocol. Patients in the pre-protocol group had to have been transferred out of the emergency department at some time during their hospital stay and had to have received at least one dose of benzodiazepine for treatment of alcohol withdrawal. The primary outcome was the duration of benzodiazepine treatment for alcohol withdrawal, defined as the time difference in hours between the first and last doses given in hospital. Secondary outcomes included total benzodiazepine dose, defined as the total dose, in oral lorazepam dosage equivalents, received over the total duration of treatment. The severity of AWS was also tabulated. The study examined whether the protocol was warranted for the patients as defined by the	The percentage of admissions in which alcoholism was the primary diagnosis was lower in the pre-protocol group (61% versus 71%). The median duration of benzodiazepine treatment for alcohol withdrawal declined significantly after introduction of the combination protocol: 91 h for the pre-protocol group versus 57 h for the post-protocol group ($p < 0.001$). Symptom-triggered benzodiazepine doses were given in 69 (97%) of the 71 pre-protocol admissions and 69 (96%) of the 72 post-protocol admissions, whereas fixed-schedule benzodiazepine doses were given in 49 (69%) of the 71 pre-protocol admissions and 64 (89%) of the 72 post-protocol admissions. The number of patients experiencing one or more severe complications of alcohol withdrawal declined significantly after implementation of the protocol (50% versus 33%; $p = 0.019$), with the greatest absolute reductions in the incidences of hallucinations and use of restraints Protocol-guided treatment of alcohol withdrawal was also associated with a statistically significant reduction in use of adjunctive medications (65% versus 38%, $p = 0.001$), with the greatest absolute reductions in	**Strengths:** -Pre and post protocol group were included in the study. -Inclusion and exclusion criteria were included. - To avoid confounding withdrawal symptoms, patients with active opiate, benzodiazepine, or stimulant withdrawal and delirium were excluded. - patients with early discontinuation were included in the analyses of secondary outcomes but eliminated from the primary data. - A sample-size calculation (using $\alpha = 0.05$ and power = 80%) was used to show a difference in benzodiazepine treatment duration as small as 30 hours. **Limitations:** -No randomization. -Limited information regarding sampling. -Two groups were sampled from different periods.	Implementation of an alcohol withdrawal protocol with a combination of fixed-schedule and symptom-triggered benzodiazepine dosing in a medical ward was associated with a shorter duration of benzodiazepine use and a lower incidence of severe complications of alcohol withdrawal **PHAC (2014) rating:** Medium in design and quality.

inpatients at a tertiary care hospital.	following criteria: alcohol intake during the week before admission to hospital of 4 or more drinks per day for men or 2 or more drinks per day for women, score of 2 or above on the CAGE questionnaire for evaluating alcoholism. Adherence to the protocol and CIWA-Ar monitoring by nursing staff was also evaluated. Nonparametric test and SPSS were used in data analysis.	the use of haloperidol, loxapine, quetiapine, and valproic acid. CIWA-Ar monitoring was completed exactly as per protocol in only 17 (24%) of the 72 admissions. Adherence with symptom-triggered benzodiazepine dosing, as per CIWA-Ar scoring, was also inconsistent. Overall, the implementation of an alcohol withdrawal protocol with combination fixed-schedule and symptom-triggered benzodiazepine dosing was associated with improved efficacy and safety of alcohol withdrawal treatment for medical inpatients relative to usual care before implementation of the protocol.	-Limited information regarding study setting.

Literature Summary Table for Rees and Gowing (2013).

Name, Author, Date, Objective	Sample/Group Size, Setting Characteristics	Design and Methodology	Key Results and Findings	Strengths and Limitations	Conclusion and Rating
Name: Supplementary thiamine is still important in alcohol dependence. **Author:** Rees, E., & Gowing, L. R. **Date:** January 2013 **Objective:** The study was designed to assess the effect of mandatory thiamine enrichment of wheat flour on blood thiamine levels in an alcohol-dependent population.	100 participants with AUD entering an inpatient service for the management of alcohol withdrawal were included in this study. Approximately half (n = 46) the alcohol-dependent participants reported taking vitamin supplements prior to admission. Control participants (n = 20) with no history of treatment for alcohol abuse had thiamine blood tests and diet interviews The study was undertaken at a public inpatient unit specializing in drug and alcohol withdrawal (Drug and Alcohol Services, South Australia).	Participants had thiamine blood tests and diet interviews on admission. A second thiamine blood test was taken prior to discharge on 77 participants, if participants consented. Standard thiamine treatment included thiamine supplementation in the form of an intramuscular injection and 100 mg tablets. All people entering the inpatient clinic were eligible if they required blood samples taken for routine testing and did not receive intramuscular vitamin treatment before blood was taken. Alcohol-dependent participants were admitted to the inpatient unit on Day 0 and remained until Day 5 (6 days in total). The length of stay was extended to 7–10 days if significant withdrawal was experienced. Blood samples were taken for routine clinical tests and thiamine assay on admission. On day two or three participants were approached for formal consent and interviewed about their typical diet, the food they ate in the week before admission, and whether they were using any vitamin supplements at the time of admission. Participants in the control group attended an interview at a location convenient to them. After formal consent, they were interviewed about their normal alcohol consumption and typical diet using a daily food record sheet (see below) and information about standard drinks.	Blood thiamine levels of alcohol-dependent subjects who did not report taking vitamin supplements were significantly lower than blood thiamine levels in the control-group participants with no history of alcohol abuse or dependence Blood thiamine levels in alcohol-dependent participants who did take vitamin supplements (n = 46, median 187 nmol/l, range 108–383) were lower than blood thiamine levels in the control-group participants, but the difference was not statistically significant. Control participants consumed significantly larger amounts of thiamine in their diet compared with alcohol-dependent participants (P < 0.0001). Alcohol-dependent participants who reported no use of vitamin supplements had significantly lower (P < 0.05) blood thiamine levels compared with controls, whereas controls and those who reported using vitamin supplements had no significant difference. No correlation was found between reported levels of alcohol consumption and admission blood thiamine levels.	**Strengths:** -Control group was used. -Inclusion and exclusion criteria was included. -Study was ethically approved. -Appropriate statistical tests used. **Limitations:** -Participants were required to volunteer. -Participants were rewarded with a $40-dollar gift card. -Small sample size.	Reduced blood levels of thiamine in people who are alcohol dependent, compared with those with no history of alcohol abuse, are likely to be because of the poor diet. Supplementation of dietary intake of thiamine in people who are alcohol dependent remains an important measure for the prevention of Wernicke–Korsakoff's syndrome in this population. **PHAC (2014) rating:** Medium in design and quality.

Alcohol-dependent participants were divided into two groups based on whether or not they reported regular use of vitamin supplements prior to admission.

All analyses were non-parametric as the data were not normally. Results were considered significant if $P < 0.05$.

The increase in blood thiamine levels from admission to discharge indicate that the thiamine supplementation regime, combining parenteral and oral administration that was used routinely in the inpatient unit, is effective.

Thus it is recommended that the people who are alcohol dependent should be encouraged to take vitamin supplements on a routine basis to help prevent thiamine deficiency.

Literature Summary Table for Riddle et al. (2010).

Name, Author, Date, Objective	Sample/Group Size, Setting Characteristics	Design and Methodology	Key Results and Findings	Strengths and Limitations	Conclusion and Rating
Name: Alcohol withdrawal: development of a standing order set. **Author:** Riddle, E., Bush, J., Tittle, M., & Dilkhush, D. **Date:** June 2010 **Objective:** The main objective of the study was to develop a standing order set to identify and treat AWS, while determining if symptom-based treatment was more effective than dose-scheduled treatment of alcohol withdrawal.	The project then began on the 2 identified units, the trauma ICU and the step-down medical/surgical trauma unit. Patients who had a history of alcohol abuse, were intoxicated on admission, or were thought to be going through delirium tremens as determined by physician assessment were identified on the 2 units. The project then began on the 2 units, the trauma ICU and the step-down medical/surgical trauma unit. Patients who had a history of alcohol abuse, were intoxicated on admission, or were thought to be going through delirium tremens as determined by physician assessment were identified on the 2 units and included. A total of 31 patients were in the symptom-based group, which used the order set: 14 patients (45%) in the non–critical care area and 17	A multidisciplinary committee, including nurses, pharmacists, physicians, and dieticians, was formed to develop a standing order set that could be used to identify and treat alcohol withdrawal in both patients who are critically ill and patients who are not. A critical care nurse and clinical pharmacist were given the task of researching the literature and developing an evidence-based standing order set. The order set was formatted to follow a symptom-based method, with the intent to decrease the amount of drug used and time required to treat alcohol withdrawal The preliminary order set was then presented to the multidisciplinary committee, where there was discussion and minor changes were made. The order set was then presented to the institutional review board of the hospital, the pharmacy and therapeutics committee, and the medical council for approval. The multidisciplinary committee then recommended a performance improvement project be conducted on both a critical care unit and a non–critical care unit. Training of staff then began. This training was done by one-to-one education and the use of a poster board. The in-service	A comparison was made between all 31 patients using the order set (symptom-based treatment) and the charts of the 25 patients not using the order set (scheduled-dose treatment). The mean number of days that medication was required to treat alcohol withdrawal was 3.2 days for patients with the order set and 5.2 days for patients without the order set. The length of stay for patients who received scheduled-dose medications was shorter than that for patients who used the order set The mean amount of lorazepam used was 13.8 mg (range, 0–68 mg) for patients using the order set and 6.6 mg (range, 0–36 mg) for patients not using the order set. The mean amount of chlordiazepoxide used was 150.8 mg (range, 0–850) for patients using the order set and 349 mg (range, 0–1800 mg) for patients not using the order set. Physical restraints were used 5 times in each group of patients.	**Strengths:** -Multiple health care professionals were involved in the review of the order set. -Multiple edits and reviews were made before role out. -Data were collected over 18 months. -Detail procedure of order set development included. **Limitations:** -Small sample size. -Detailed statistical analyses were not performed. -Limited information provided regarding sampling.	After completion of the project, both the medical and nursing staff were satisfied with the standing order set, so no changes were made. The institution has approved the use of the standing order set on all units, including the emergency department. **PHAC (2014) rating:** Medium in design and quality.

patients (55%) in the critical care area.

Charts for 25 patients, 16 (64%) in the non–critical care area and 9 (36%) in the critical care area, who did not use the order set and received scheduled-dose medications for alcohol withdrawal were reviewed.

training was validated by a 5-item test given to the nursing staff to ensure that they understood the process and the documentation required.

For comparison, a retrospective chart review was conducted to identify patients treated for alcohol withdrawal before the order set was developed

Literature Summary Table for Cremonte et al. (2010).

Name, Author, Date, Objective	Sample/Group Size, Setting Characteristics	Design and Methodology	Key Results and Findings	Strengths and Limitations	Conclusion and Rating
Name: Psychometric properties of alcohol screening tests in the emergency department in Argentina, Mexico and the United States. **Author:** Cremonte, M., Ledesma, R., Cherpitel, C., Borges, G., Cremonte, M., Ledesma, R. D., & Borges, G **Date:** September 2010 **Objective:** The objective of this article was to report psychometric characteristics of the AUDIT, CAGE, RAPS4, and TWEAK and to compare them across three countries:	Probability samples of patients were drawn from emergency departments (ED) in each country: Argentina, Mexico and the U.S. In Argentina, the sample was collected from the largest ED of the city of Mar del Plata in the state of Buenos Aires (*n* = 780); in Mexico from three EDs in Pachuca in the state of Hidalgo (*n* = 1624); and in the US from an ED in Santa Clara, California (*n* = 1220).	The data analyzed included those who reported having consumed at least one drink during the last twelve months (current drinkers): 85% in Argentina (*n* = 662), 34% in Mexico (*n* = 559), and 72% in the U.S. (*n* = 884). The questionnaire used in this study included, the Alcohol Section of the Composite International Diagnostic Interview (CIDI) Core to obtain a DSM-IV diagnosis for alcohol dependence for the last 12 months, and items comprising the AUDIT, CAGE, RAPS4, and TWEAK. All screening items were also framed to inquire about the last twelve months (although the CAGE is typically used on a life-time basis). The cut-point at which a screen was considered positive was: AUDIT (a weighted score of 8), CAGE (1), RAPS4 (1), and TWEAK (a weighted score of 2). Sensitivity and specificity for the AUDIT, CAGE, RAPS4, and TWEAK were estimated for each country against a standard diagnosis of alcohol dependence according to DSM-IV criteria obtained from the CIDI core. Concurrent validity was additionally assessed for the briefer screeners (CAGE, RAPS4, and TWEAK) by estimating their	The AUDIT showed high sensitivity and specificity in all the three countries. Internal consistency for the AUDIT was higher in the U.S., although good (above .80) in all three countries. Sensitivity of the CAGE appeared (no formal statistical testing was done) higher in the U.S. and Mexico, and somewhat lower in Argentina, while specificity seemed higher in Argentina and lower in the other two countries (not unexpected since sensitivity and specificity are inversely correlated). Sensitivity of the RAPS4 was high in the three countries; specificity appeared lower in the U.S. In the three countries, the RAPS4 was the brief screener that showed the highest correlation with the AUDIT. As with the AUDIT and CAGE, the RAPS4 had good internal consistency in the three countries, but seemed higher in the U.S. Sensitivity of the TWEAK was high in the three countries. Specificity appeared to be lowest in Argentina (below 70%). Correlation with the AUDIT was higher in the U.S. The scale's internal consistency was below .70 in Argentina and Mexico and .71 in the US. In Argentina, the instruments with the highest sensitivity were the TWEAK and AUDIT, followed closely by the RAPS4. In Mexico, the RAPS4 and the AUDIT performed equally well, while the TWEAK had a slightly lower sensitivity. In the U.S. the CAGE, RAPS4 and the AUDIT had high sensitivity; although	**Strengths:** -3 countries included in the study. -Inclusion and exclusion criteria. -Large study population. -Completion rates were high at 92%, 93%, and 73% respectively. -Informed consent was obtained. -Accuracy in translation to Spanish was ensured. **Limitations:** -There was missing data included. -No statistical testing on CAGE. -Order in which the instruments and the CIDI were presented might have affected their psychometric performance. -These findings cannot be generalized to other populations, or to other regions within the same country, since regional variations affecting samples and psychometric results within EDs in the same country have been reported.	In Argentina and Mexico, the AUDIT and the RAPS4 showed the highest validity. Reliability of all instruments was higher in the US than in Argentina or Mexico. In all three countries, reliability of the TWEAK was lowest, while the AUDIT was highest. **PHAC (2014) rating:** Strong in design and quality.

Argentina, Mexico, and the United States which used a similar AWS protocol and methodology.	Pearson correlation (one-tailed) with the AUDIT total scores (as the longest scale). The Statistical Package for the Social Sciences (SPSS) for Windows version 11.5 was used for data processing and analysis. Complementary psychometric analyses were performed using ViSta-CITA.	the RAPS4 had a somewhat lower specificity (75%) and the CAGE even lower. Comparing the instruments' validity among the three countries, the CAGE had the poorest performance, although somewhat better in the U.S. than in Argentina and Mexico. Reliabilities of all instruments were higher in the U.S. Among the instruments, the TWEAK had the lowest estimates in all three countries, while the AUDIT had the highest.

Literature Summary Table for Geneste et al. (2012).

Name, Author, Date, Objective	Sample/Group Size, Setting Characteristics	Design and Methodology	Key Results and Findings	Strengths and Limitations	Conclusion and Rating
Name: CAGE, RAPS4, RAPS4-QF and AUDIT Screening Tests for Men and Women Admitted for Acute Alcohol Intoxication to an Emergency Department: Are Standard Thresholds Appropriate? **Author:** Geneste, J., Pereira, B., Arnaud, B., Christol, N., Liotier, J., Blanc, O., … Brousse, G. **Date:** May 2012 **Objective:** The main objective was to study the psychometric features concerning optimal thresholds scores (TSs), of the eye-CAGE, Rapid Alcohol Problem Screen 4 (RAPS4), RAPS4-quantity-frequency and AUD Identification Test (AUDIT) questionnaires, particularly in the sub-group of people admitted for acute alcohol intoxication (AAI).	A total of 164 persons (122 males, 42 females) were included in the study. Nineteen (11.60%) were identified as alcohol abusers alone and 128 (78.1%) as alcohol dependents. This study was conducted from 1 March to 1 May 2008 at the 24 hour emergency department of the Centre Hospitalier Universitaire (CHU) Gabriel Montpied in Clermont-Ferrand, France.	All included patients were assessed by the four scales, and with a gold standard (alcohol dependence⁄abuse section of the Mini International Neuropsychiatric Interview), to determine AUD status. Examination of each patient included recording social, demographic and medical history data and clinical measures, including diagnostic interviews and administration of the alcohol screening questionnaires. Interviews were conducted in confidence in a private area of the ED by qualified interviewers using a structured interview schedule lasting ~50 min on average. Parametric (Student's *t*-test), non-parametric (Mann–Whitney for non-normal distributions) and χ^2 statistical tests were used to conduct between-group comparisons using SPSS.	Alcohol abuse alone was diagnosed in 19 patients (11.6%, 14 males, 5 females) and alcohol dependence in 128 (78.05%, 98 males, 30 females). Seventeen patients (10 males, 7 females) were neither abusers nor addicts. The results showed a statistically significant difference between men and women ($P < 0.05$) in performance of the screening tests RAPS4 (≥1) and CAGE (≥2) for detecting abuse. The AUDIT test demonstrates good performance for detecting alcohol abuse and/or alcohol-dependent patients (≥7 for women and ≥12 for men) and for distinguishing alcohol dependence (≥11 for women and ≥14 for men) from other conditions. Main findings of this study population are: -Good sensitivity and poor specificity of the screeners at usual threshold scores (TSs). -The necessity of increasing TSs to obtain adequate specificity while simultaneously maintaining good sensitivity. -Differential performance between screening tests relative to gender. -The good performance of the AUDIT. CAGE maintains very good sensitivity (0.94) at threshold score ≥2 for detecting abuse and/or dependence; the sensitivity of the CAGE has been found to range from 72 to 91% and its specificity from 77 to 96%. The French version of the CAGE (diminuer, entourage, trop, alcool), with a threshold score ≥2, showed a sensitivity of 83% and a specificity of 96% for AUD	**Strengths:** -Inclusion exclusion criteria included. -Ethical approval received. -High response rate of 86%, -Informed consent obtained. -Interviewers trained in data collection. - Bonferroni correction on *t*-tests was used to protect against chance findings. **Limitations:** -Small sample size - sample is primarily composed of alcohol-dependent patients (78.05%) -Additional research is needed, this study is the first of its kind. -Limited information on sampling procedure.	This study highlights the need to adapt the thresholds of screening tests for AWS typically used for detection of abuse and dependence in this population taking into account gender. **PHAC (2014) rating:** Medium in design and quality.

Appendix C: AUDIT Questionnaire

The Alcohol Use Disorders Identification Test: Interview Version

Read questions as written. Record answers carefully. Begin the AUDIT by saying "Now I am going to ask you some questions about your use of alcoholic beverages during this past year." Explain what is meant by "alcoholic beverages" by using local examples of beer, wine, vodka, etc. Code answers in terms of "standard drinks". Place the correct answer number in the box at the right.

1. How often do you have a drink containing alcohol?
   (0) Never [Skip to Qs 9-10]
   (1) Monthly or less
   (2) 2 to 4 times a month
   (3) 2 to 3 times a week
   (4) 4 or more times a week

2. How many drinks containing alcohol do you have on a typical day when you are drinking?
   (0) 1 or 2
   (1) 3 or 4
   (2) 5 or 6
   (3) 7, 8, or 9
   (4) 10 or more

3. How often do you have six or more drinks on one occasion?
   (0) Never
   (1) Less than monthly
   (2) Monthly
   (3) Weekly
   (4) Daily or almost daily
   Skip to Questions 9 and 10 if Total Score for Questions 2 and 3 = 0

4. How often during the last year have you found that you were not able to stop drinking once you had started?
   (0) Never
   (1) Less than monthly
   (2) Monthly
   (3) Weekly
   (4) Daily or almost daily

5. How often during the last year have you failed to do what was normally expected from you because of drinking?
   (0) Never
   (1) Less than monthly
   (2) Monthly
   (3) Weekly
   (4) Daily or almost daily

6. How often during the last year have you needed a first drink in the morning to get yourself going after a heavy drinking session?
   (0) Never
   (1) Less than monthly
   (2) Monthly
   (3) Weekly
   (4) Daily or almost daily

7. How often during the last year have you had a feeling of guilt or remorse after drinking?
   (0) Never
   (1) Less than monthly
   (2) Monthly
   (3) Weekly
   (4) Daily or almost daily

8. How often during the last year have you been unable to remember what happened the night before because you had been drinking?
   (0) Never
   (1) Less than monthly
   (2) Monthly
   (3) Weekly
   (4) Daily or almost daily

9. Have you or someone else been injured as a result of your drinking?
   (0) No
   (2) Yes, but not in the last year
   (4) Yes, during the last year

10. Has a relative or friend or a doctor or another health worker been concerned about your drinking or suggested you cut down?
    (0) No
    (2) Yes, but not in the last year
    (4) Yes, during the last year

Record total of specific items here

If total is greater than recommended cut-off, consult User's Manual.

Appendix B: Environmental Scan and Informant Consultations

Preventing, Identifying, and Managing Alcohol Withdrawal in Surgical Patients: Environmental Scan and Key Informant Consultations

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Alcohol use disorders (AUDs) have negative physical, emotional, social, and economic effects in the general Canadian population (Public Health Agency of Canada [PHAC], 2015). The health of individuals who partake in regular and heavy alcohol consumption is often compromised due to this behavior, and is influenced by the frequency of consumption, the amount consumed, the person's individualized risk factors, and the activities they partake in while drinking (Government of Canada, 2013). If hospitalized, these persons are at risk for additional complications due to the onset of alcohol withdrawal syndrome (AWS). Although alcohol affects many organs in the body (i.e., stomach, intestines, liver, heart, pancreas, lungs, and kidneys), the most detrimental effects of AWS are caused by the effect that sudden alcohol cessation has on the brain (Elliott, Geyer, Lionetti, & Doty, 2013). The risk for complications is increased further in the surgical patient. As many as 66% - 82% of surgical patients who consume greater than 6 drinks per day experience increased complications associated with AWS, due to the additional stress that surgical procedures and the associated recovery places on the body (Genther & Gourin, 2012; Melson, Kane, Mooney, McWilliams, & Horton, 2014).

Nurses have the most frequent contact with surgical patients, and they have a critical role when caring for patients experiencing AWS. They are responsible for identifying AUDs through preoperative screening, as well as managing AWS through early identification and medical treatments (Elliott et al., 2013). The nursing care of these patients is often complex and multifaceted, which is difficult for nurses to manage if they do not have the appropriate knowledge and resources to assist them (Berl et al., 2015; Freeman, Roche, Williamson, & Pidd, 2011). To address this need, the main objective of this practicum project is to develop a tool kit to assist surgical nurses in identifying AUDs, as well as to assist them in identifying, preventing, and managing alcohol withdrawal in the patients they care for. Although the literature supports

the provision of additional education for nurses and their patients regarding AUDs and AWS, it was imperative that an environmental scan and key informant interviews be conducted to ensure the tool kit appropriately addresses the specific needs of these groups at St. Clare's Mercy Hospital (SCMH). This information will then be used to inform the development of the tool kit, and could assist nurses to work towards better patient outcomes for this population.

Background

AUDs have a broad definition that can be used to describe mild, moderate, and severe sub-classifications of alcohol dependency (i.e., the craving, tolerance, and preoccupation with alcohol, as well as continued drinking despite harmful consequences) and alcohol abuse (Kattimani & Bharadwaj, 2013). AWS results from the cessation or reduction in alcohol after prolonged use, and consists of a variety of symptoms that range from mild (i.e., tremor, anxiety, diaphoresis, tachycardia, and sleep disturbances), which usually occur in the first 24 hours, to moderate and severe (i.e., fever, confusion, clouding of the sensorium, hallucinations, aggression, blackouts, agitation, and seizures), eventually leading to delirium tremens (DT; Gordon, Olstein, & Conigliaro, 2006; Sutton & Jutel, 2016). The clinical condition of DT further complicates recovery in 10% of this population, due to elevated temperature, tachycardia, hypertension, tremulousness, fluctuations in levels of consciousness, hallucinations, disorientation, and urinary incontinence (Gordon et al., 2006; Sutton & Jutel, 2016).

In preparation for this practicum project, a literature review was conducted on AUDs and AWS, with the results suggesting that nurses may lack the resources and up-to-date knowledge needed for quick and effective identification, prevention, and management of these conditions in surgical settings. It was determined that the best way to prevent, identify, and manage AWS in this population is through early identification of AUDs via preoperative screening (Cunningham

& Puskar, 2007; Gili-Miner et al., 2014; Kip et al., 2008). AUDs, however, are often difficult to identify, due to screening processes relying heavily on patients' self-reports on the amount of alcohol they consume. This makes accurate screening imperative for improved patient outcomes (Kip et al., 2008). As well, this review highlighted other key elements required besides nurse education and valid screening tools for effective management of these conditions, including symptom-triggered and regular medication protocols and standardized guidelines to ensure consistent care for all patients (Swift, Peers, Jones, & Bronson, 2010).

SCMH is prone to a large volume of patients who have AUDs and experience AWS. This problem partly stems from the high levels of excessive alcohol consumption in the province of Newfoundland and Labrador, in combination with increased hospitalization due to the adverse health effects associated with heavy drinking (Canadian Centre on Substance Abuse, 2012; Eastern Health, 2012; Statistics Canada, 2013). To ensure nurses at SCMH have the opportunity to receive the necessary education regarding AUDs and AWS, a tool kit focusing on identifying, preventing, and managing AWS in surgical patients will be developed. Nurses in this area could experience tremendous gains from a tool kit that provides additional education on this topic, such as improved clinical skills and increased confidence when dealing with this patient population (Freeman et al., 2011; Tran, Stone, Fernandez, Griffiths, & Johnson, 2009).

Prior to the development of this tool kit, it was essential to conduct an environmental scan, as well as key informant interviews, to identify the essential components that should be included in this resource. This paper outlines the methods and key results of both the environmental scan and key informant interviews. This information will be used to inform the development of the tool kit for the surgical nurses and patients at SCMH.

Environmental Scan

The objectives of the environmental scan were:

1. Identify existing policies and procedures for identifying AUDs and preventing, identifying, and managing AWS in one or two hospitals for each provincial health authority in Newfoundland and Labrador.
2. Identify existing policies and procedures for identifying AUDs and preventing, identifying, and managing AWS in one hospital for each Atlantic province, except Newfoundland and Labrador.
3. Identify any nursing or patient educational materials that exist in eight hospitals in Atlantic Canada that could inform the development of a tool kit on AUDs and AWS for surgical nurses and their patients.
4. Identify any nursing or patient educational materials that exist on the internet that could inform the development of a tool kit on AUDs and AWS for surgical nurses and their patients.

Environmental Scan of Atlantic Canada

Methods. The initial step in the environmental scan was to determine what other health care facilities used to identify AUDs and prevent, identify, and manage AWS in surgical patients (i.e., existing tool kits or educational resources). To begin this process, the websites of seven hospitals in seven different health authorities were reviewed to see if they contained any information regarding AUDs or AWS. The seven facilities were selected based on their location and the population size they service, resulting in the inclusion of only large hospitals with in-patient surgical services. The included facilities were comprised of four hospitals in Newfoundland and Labrador: SCMH (Eastern Health); Central Newfoundland Regional Health

Centre (Central Health); Western Memorial Regional Hospital (Western Health); and Labrador West Health Centre (Labrador Grenfell Health); and three hospitals in Atlantic Canada, including: QEII Health Sciences Centre (Nova Scotia Health); Dr. Everett Chalmers Regional Hospital (New Brunswick Horizon Health Network); and Queen Elizabeth Hospital (Health Prince Edward Island [PEI]).

After being reviewed to locate any policies, procedures, or resourses used to identify AUDs or identify, prevent, or manage AWS, the facility websites were also used to find the contact information of seven surgical nursing managers within these hospitals. These managers were then contacted via email to request their participation in the environmental scan (see Appendix A). The email sent to these hospital representatives included a request for a copy of the alcohol withdrawal policy and protocol used in each hospital, as well as any educational material on AUDs or AWS they have for patients or nurses. The surgical nursing managers were informed in the email about how this information would be used, and they were assured that their copyrighted material would only be included in the tool kit with their written permission. To help in data collection, a checklist was created to keep track of which facilities were contacted and what information was collected from them.

Data from Eastern Health were reviewed first, followed by data collected from other health authorities in Newfoundland and Labrador. Finally, the data from the other Atlantic provinces were examined. The policies, procedures, and educational materials were assessed for common and recurring themes, to help determine which information was pertinent for inclusion in the tool kit.

Ethical considerations. To determine whether or not ethical approval was required for the project, the Health Research Ethics Authority Screening Tool was completed (see Appendix

B). The results indicated that the project did not require ethical approval. Additionally, a variety of measures were taken to protect the rights of the individual representatives of the facilities, and the health authorities and hospitals they work for. Firstly, it was ensured that the participants knew their involvement in this project was strictly voluntary. The purpose of the environmental scan was fully explained to each participant, as well as how the results would be used. Permission was sought in writing from the representatives to include the copyrighted material they sent me in the tool kit for SCMH. Representatives were then guaranteed that materials used would be referenced appropriately, and credit would be given to the facilities for their resources. Finally, copies of the emails from the copyright holders were kept granting this permission to use these materials in the tool kit.

Results. The policy for the treatment of AWS in Eastern Health was the first to be collected through the use of their internal server (see Appendix C). It will be used in the tool kit with written permission. This policy consists of the recommended procedures recognised by Eastern Health as a means to screen for AUDs and manage AWS in all patient settings (e.g., medicine, surgery, mental health, emergency departments [ER]). Eastern Health specifies that the CAGE Questionnaire should be used by nurses at the point of entry to care services (i.e., the nurse who first sees the patient) on all patients over the age of 19. As per this protocol, the CIWA-Ar should then be initiated to manage AWS and its associated symptoms. There are no educational resources for patients or nurses used by Eastern Health currently.

None of the other websites of the facilities contacted had information on AUDs, AWS, or associated policies or procedures. Of the six facilities outside of Eastern Health, five surgical nurse managers replied to the email requesting copies of the policies or procedures used in their setting for identifying AUDs and preventing, identifying, and managing AWS. At this time, only

two of these five nurse managers were able to provide copies of the protocol/procedures used in their hospitals. Three forwarded my email on to people in other departments who they thought could better assist me with this project. If further responses are received, the information collected from these facilities will be added to the results of the environmental scan. Despite a reminder, there has been no response from Labrador Grenfell Health at this time.

Western Health was the first to respond to the email request. This respondent stated that there are no specific policies or protocols for identifying AUDs or dealing with AWS in the surgical setting. Additionally, there were no patient or nursing educational materials on this topic used by Western Health. Similar to Eastern Health, Western Health uses both the CAGE questionnaire for screening AUDs and the CIWA-Ar for treating AWS. The second facility representative to respond was from the Queen Elizabeth Hospital in PEI. Surgical patients in this region are advised not to consume alcohol 24 hours prior to admission, as well as 24 hours postdischarge, as part of the fasting guidelines (see Appendix D). A detailed history is taken to identify alcohol use, and this information is recorded in the facility's computer system to be viewed by all members of the health care team. They do not use the CAGE questionnaire, and screening and treatment methods are left to the discretion of the team.

Internet Review

Methods. While awaiting the responses of the nursing managers contacted in the initial phase of the environmental scan, an internet search was conducted to determine if there were any existing alcohol withdrawal tool kits and educational resources for both nurses and patients. This search focused on tool kits or educational materials used by both Canadian and international facilities. Google was utilized for this search, and search phrases included: "alcohol," "alcohol withdrawal," "alcohol abuse," "tool kit," "resource," "patient education," and "nurse education."

Resources that also focused on drug abuse were excluded from this review, as were resources that were not written in English. Notes were made of existing tool kits and resources that were useful for patients and nurses on the topic of AUDs and AWS in inpatient settings. These resources were then examined for common and recurring themes, to help determine which information was best to include in the development of the tool kit for surgical patients at SCMH. All information gathered from this review will be referenced appropriately, to respect and credit the work of the authors of these tools.

Results. A number of resources were reviewed regarding AUDs and AWS within inpatient hospital settings. After excluding resources that had a focus on drug abuse as well as alcohol abuse, there was a total of four tool kits that provided educational material for health care professionals and their patients. Two of these tool kits were developed in Canada, the first by St. Joseph's Health Care Centre (2009) and the second by the Centre for Addiction and Mental Health (2016). The other two tool kits that provided a good description of AUDs and AWS were both produced in the United Kingdom, the first by the Royal College of Emergency Medicine (2015) and the second by the Dudley and Walsall Mental Health Partnership (2015).

The tool kits all focused on similar themes, including both nursing and patient educational material. The most informative tool found through this search was the tool kit designed by the Centre for Addiction and Mental Health (2016). This tool kit included information such as: defining different types of alcohol abuse (e.g., low risk, high risk, dependency); defining a standard drink and what classified as risk for AWS; discussing the consequences of drinking; describing the screening tools used by different facilities; describing ways to recognize AUDs and AWS; describing how to take an appropriate drinking history; discussing strategies for encouraging open communication when it seems a patient may not be

truthful regarding their drinking; describing clinical features of alcohol withdrawal; discussing the management of AUDs and AWS with medications, and other nursing interventions; and finally discussing resources in the area for professionals as well as patients and their families to utilize when dealing with AUDs. The St. Joseph's Health Care Centre (2009) outlined their tool kit very similarly, placing an extensive amount of focus on the clinical features or signs and symptoms of AUDs and AWS. Furthermore, they also discussed in detail advice for at risk patients to reduce drinking and prevent AWS when being admitted to the hospital setting. In addition to outlining the previously mentioned information, the tool kit by the Dudley and Walsall Mental Health Partnership (2015) also included the roles and responsibilities of different health care professionals (e.g., pharmacy, physicians, preoperative and postoperative nurses), as well as a description of other important nursing interventions for these patients (e.g., patient observational techniques and dietary requirements). While all of the tool kits included in this review focused on the medical management of AWS, the Royal College of Emergency Medicine (2015), differed by also including information about vitamins needed for managing AWS, such as Thiamine, Folic Acid, and multivitamins, with specific interventions outlined for different populations (e.g., the elderly, women, pregnant patients, and middle aged men).

These tool kits provided a good foundation for the development of the SCHM tool kit, as the common themes represent information these multiple authors believed to be important in caring for patients with AUDs and AWS. This information will be used throughout the development of the tool kit to help determine what to include, as well as to help design patient-specific educational tools for surgical patients.

Key Informant Interviews

Over a 3-week period, key informant interviews were conducted with health care professionals at SCMH to better understand the specific needs of surgical nurses and their patients at this facility. Nurses involved with pre- and post-surgical care at SCMH, along with a manager, a nursing educator, and a physician were included in this process. Their input and perspectives will be used to influence the development of the tool kit; hence the design will fit within their needs, and the needs of their patients.

Methods

The interview process was initiated through a meeting with the surgical manager of general/thoracic surgery (6E) at SCMH to ask for approval for the informant interviews to be conducted in the unit. The nursing manager was also asked for assistance in recruiting informants from a variety of settings, as well as a time to be interviewed on AUDs and AWS in the surgical program. The clinical educator of the surgical program was also contacted via email, with a request to meet to discuss this topic. Nurses on the unit were aware of this project, and were asked to express their interest in participation through verbal communication. In addition to surgical nurses, the 6E manager also contacted a representative from the preoperative program to request the participation of a preoperative nurse in the interview process. This process was also used to reach out to physicians who are involved in the care of surgical patients (i.e., a surgeon and psychiatrist who specializes in AWS). Finally, a nurse in the ER was contacted via telephone, as suggested by the 6E manager, to further discuss AUDs and AWS in their setting. There has been no response from the preoperative nursing unit or the AWS specialist at this time.

The interviews took place in a one-on-one session in a quiet, private setting. As per the participants' choice, all but two of the interviews took place in person, and the others (i.e., the

interview with the ER nurse and the surgical nurse educator) took place via telephone. A broad set of questions were designed to help guide the semi-structured interviews (see Appendix E), with the interviews lasting from 20-30 minutes. Semi-structured interviews are frequently used in research and program evaluation projects involving health care professionals to uncover issues, as well as the means to address them. This interviewing technique involves using some key planned questions to give the interviewer control over the conversation, but leaves the interview open for discussion (Streubert & Carpenter, 2011). The loose structure of open-ended questions provides the interviewer with the ability to explore the topic and build a relationship with participants (Al-Busaidi, 2008). Brief paper and pen notes were taken during the interviews, with additional time taken at the end of the interview for more detailed notes to be made while the discussion was still fresh in my mind.

The notes were then typed, saved on a personal computer, and password protected to ensure participant confidentiality is protected. After all of the interviews were completed, the transcripts were read and re-read to identify common themes and viewpoints of nurses who care for patient experiencing AWS. The feedback from these participants will be incorporated into the development of the tool kit, as this information will assist nurses to better inform patients on the complications of AUDs and AWS, as well as to inform nurses on the best methods for identifying AUDs, and identifying, preventing, and managing AWS.

Ethical Considerations

As previously mentioned, the Health Research Ethics Authority Screening Tool was completed (see Appendix B). Prior to the interviews, participants were informed that the conversations were completely confidential, and their names would not be recorded or used in the tool kit. Verbal consent was then received. Participants were also instructed that the interview was completely voluntary, and there would be no repercussions for not wishing to participate. Interviews were conducted in a private, convenient setting to once again protect participant confidentiality, and the participants were asked if they minded note taking during the interview. These handwritten notes are kept in a locked cabinet, and are only accessible to me. There was no annotation of the participant's name or identifying features, as coding was used to protect their identity. The typed notes were

password protected and kept on a personal computer. All notes will be destroyed 1 year after the completion of the tool kit.

Results

The aim of this project was to take the information received from the semi-structured interviews and transform the participant narratives into a final description of recurrent themes to assist in the development of the SCMH tool kit (Ryan, Coughlan, & Cronin, 2007). The interview process began with the surgical nurse educator at SCMH, who stated that the alcohol withdrawal protocol (AWP) for Eastern Health is currently undergoing a revision. She did state that the CAGE protocol and the CIWA-Ar will still be used; however, the protocol will now have additional explanations of the symptoms of AWS, as well as a mandatory educational video about identifying and managing AWS in the surgical setting.

All four of the general/thoracic surgical nurses who were interviewed during this process, as well as the surgical manager and nurse educator, felt that additional education was needed for nurses, physicians, and patients regarding AUDs and AWS. The most common theme that was revealed when participants were ask, “What should be included in this tool kit?” was a patient education resource that outlines the consequences of AUDs and AWS. Two participants stressed the need for patients to understand how serious this condition is, with the hopes of encouraging patients to accurately report their alcohol consumption to nurses. Both participants emphasized using the word “deadly” when describing AWS to patients. One nurse specifically mentioned that the use of educational posters placed in the preoperative clinic and pamphlets given to patients prior to admission as being the best means of reducing the rates of AWS in the surgical setting. Key pieces of information needed for this patient resource, as demonstrated by a variety of participants were: how much consumption of alcohol places you at risk for AWS; the signs and symptoms of AWS; the side effects or complications of AWS; what can happen if you refuse

or are not started on Eastern Health's AWP; what will happen during the patient undergoing AWS (e.g., restraints and intravenous [IV] medications); and how to manage AUDs on discharge. Additionally, two nurses also mentioned the need for specific nursing education, such as how to score patients using the CIWA-Ar, signs and symptoms of AUDs and AWS, and what can happen to patients undergoing AWS (e.g., aggression, violence towards nurses, and need for constant care).

All four nurses remembered reviewing the CIWA-Ar tool in orientation for Eastern Health, however, all felt this was not enough information on AWS at this time. This was confirmed with the surgical nurse manager and educator, who both stated this tool is reviewed in orientation, but more education could be provided to nurses during this process. Half of the nurses specifically referenced a need for more education in nursing school as well, as they did not feel prepared for this event when entering practice.

All members of the health care team that were interviewed (i.e., nurses, manager, physician, and educator) felt that once AUDs were recognized, the treatment of AWS was initiated in a very timely manner. All participants also felt that there was good communication between all team members when advocating for the patient's needs, and managing the symptoms of AWS. Issues in patients receiving timely treatment for AUDs and AWS did exist, and all parties felt the main cause of this was due to ineffective screening. Two participants felt that the CAGE protocol is not sensitive enough to detect heavy drinking, and all agreed that better screening needs to take place in the preoperative setting. Participants felt that by the time the staff are "catching" AWS, patients are already too far into withdrawal and are at risk for additional complications, such as admission to the intensive care unit (ICU). Other issues that were noted by nurses in these interviews were: less experienced nurses not scoring the patient

highly enough to medicate them with benzodiazepines, worsening the symptoms of AWS; patients or their families refusing medications that are used in the treatment of AWS; patients "lying" about their alcohol consumption due to the stigma associated with AUDs; patients thinking their drinking is not an issue; and patient and family's fear towards the medications used in treatment (e.g., afraid medications are the cause of symptoms).

An additional barrier to identification noted by the ER nurse was a trend that if patients were not admitted with suspected AUD complications, then they were not assessed for this in the ER. This nurse stated that in this setting confusion exists on who is to ask these questions to the patient, the physician or the nurse, with the predominant belief that it is the physician's responsibility. Sometimes then due to the busy nature of this setting, patients are not asked at all in the ER about their drinking habits. Then, when they come to the floor, surgical nurses do not ask either because they think it was done in the ER. This miscommunication can be detrimental for patients, but it could be addressed if surgical nurses know that ER nurses are not responsible for screening this in their area.

Only two participants mentioned patients or families raising concerns regarding AUDs and AWS in the surgical setting. Both incidences resulted in the family not believing alcohol withdrawal was an issue, with one family refusing all medical treatments for AWS. This lack of concern was thought to be due to the denial associated with AUDs, as well as a lack of education regarding the issue. Participants felt that often family members do not see their loved one's drinking as a problem because it is their normal experience at home. Additionally, all interviewed participants felt that this denial was associated with the shame of the patient's actions in reference to drinking, and that patients and their families need to better understand that health care professionals are not there to judge, but to assist the patient to recovery.

All participants interviewed who were involved in direct patient care noted different ways they identified AUDs and AWS in their workplace. One stated the first sign of AWS they noted was the patient extensively sweating, while another stated the sudden onset of confusion was their biggest indicator of AUDs and AWS. Other methods of identification included patients joking about wanting a drink, not appropriately responding to questions, and having a decrease in orientation, impulsive movements, agitation, and restlessness. All nurses felt that additional education on these signs and symptoms could help health care professionals identify AUDs easier, as the majority of participants felt these identification skills came from years of practice.

The four surgical nurses did not note many common errors or incidents with respect to identifying, preventing, and managing AWS in the surgical setting. Two nurses stated the only issue they have encountered was with other nurses not knowing how to score patients based on the CIWA-Ar. Both felt that additional education was needed for newer nurses in this area. This was confirmed by the nursing educator, who also stated this is usually the only concern she gets from nurses when caring for patients with AWS.

The surgical nursing manager stated that although she has not experienced any mistakes or incident reports from nurses caring for patients with AWS, she does believe this is due to underreporting. It is not an Eastern Health policy to fill out an incident report when patients are incorrectly screened or not screened at all for AUDs; therefore, it is her belief that we are underestimating the true number of incorrect screening incidents. She stated AWS creates a variety of issues for the unit, such as patient-to-nurse violence, increased numbers of sick days used, and increased workload for staff. Additionally, these patients have a large effect on the budget due to the need for constant care and additional medical treatments. She felt a multimodal

tool kit with additional nurse and patient education would be a good way to accurately address this problem.

A variety of additional measures to reduce the burden of AWS in surgical patients were noted by nurses through this interview process. Two nurses felt that the AWP needed to be changed to better assist nurses in caring for these patients. This meant changing the CAGE questionnaire, as some nurses believe it to be ineffective. One nurse thought that admitting known drinkers to the hospital prior to surgery for prophylactic benzodiazepine treatment could potentially reduce the incidence of AWS. Another thought that giving patients their choice of drink in hospital should be used to reduce the severity and length of AWS. All parties did suggest that the best means of reducing AWS comes back to early identification.

Additionally, all participants felt that including more information regarding the medications that could be used to treat AWS would be beneficial for patient care. Two nurses specifically mentioned the use of constant care (i.e., a health care professional sitting with the patient at all times to reduce harm) and the policy of least restraint should be utilized when caring for this population. Placing patients experiencing AWS in private rooms was also suggested by two nurses to reduce stimulation for these patient, with the hope of improving the quality of care for that patient and other patients on the unit. Finally, it was felt that better information on ways to reduce alcohol consumption on discharge was needed. The majority of the participants stated that nurses and physicians need to do a better job at “having the difficult conversations” with patients, referring to discussing the risks and outcomes of AUDs. They thought that symptoms and consequences of AWS, as well as the treatment methods for AWS, need to be better explained to patients to encourage them to decrease their alcohol consumption and better their quality of life.

Implications and Conclusions

Existing research indicates that it is imperative for nurses to be aware of the prevalence of AUDs, and to be educated on the signs and symptoms of AWS, as well as the appropriate screening and management methods to provide effective care for patients within this population (Berl et al., 2015; Freeman et al., 2011). Although this knowledge is critical, research has also suggested that nurses may lack the resources needed for quick and effective identification, due to the absence of clinical educational materials for patients and nurses. These results were confirmed through the conduction of the environmental scan and informant interviews as discussed above. After reaching out to a number of health care facilities, it was apparent that although a variety of clinical tools are used to screen for and treat AWS, there are few educational materials to assist nurses to use these tools, or to educate patients on the importance of honest self-reporting of alcohol consumption.

Additionally, through the exploration of the experiences and views of the health care professionals included in the key informant interviews at SCMH, it was evident that nurses, manager, and physicians alike feel there is a need for patient education regarding AUDs and AWS. Nurses also felt more could be done to reduce the burden of AWS in their unit, starting with increased nursing education on screening and treating AWS. Although this information matched with that of the integrated literature review, this information was more useful for the development of a tool kit to assist nurses in identifying AUDs, as well as identifying, preventing, and managing AWS. The common themes identified from these interviews directly outline the specific needs of nurses and patients at SCMH, and will be used along with the results of the environmental scan to inform the development of this tool kit. It is the hope that this tool kit can

then be used to help nurses better care for patients experiencing AWS, and encourage patients to discuss their drinking habits openly with their nurse.

References

Al-Busaidi, Z. Q. (2008). Qualitative research and its uses in health care. *Sultan Qaboos University Medical Journal*, *8*(1), 11–19. Retrieved from: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3087733/

Berl, K. L., Collins, M., Melson, J., Mooney, R., Muffley, C., & Wright-Glover, A. (2015). Improving nursing knowledge of alcohol withdrawal: Second generation education strategies. *Journal for Nurses in Professional Development, 31*(6), 328-332. doi: 10.1097/NND.0000000000000176.

Canadian Centre on Substance Abuse. (2012). *Analysis of beverage alcohol sales in Canada. Alcohol price policy series, report 2 of 3.* Retrieved from http://www.ccsa.ca/Resource%20Library/CCSA-Analysis-Alcohol-Sales-Policies-Canada-2012-en.pdf.

Centre for Addiction and Mental Health. (2016). *Primary care addiction tool kit. Dealing with alcohol problems.* Retrieved from https://www.porticonetwork.ca/web/alcohol-toolkit/treatment/alcohol-withdrawal

Cunningham, L., & Puskar, K. (2007). Nursing implications of alcohol withdrawal in the postoperative orthopaedic patient. *Journal of Orthopaedic Nursing, 11*(2), 91-97. doi: dx.doi.org/10.1016/j.joon.2007.02.006

The Dudley and Walsall Mental Health Partnership. (2015). *Management of alcohol withdrawal guidelines.* Retrieved from http://www.dudleyformulary.nhs.uk/download/471/-alcohol-withdrawal-management-guidelines.

Eastern Health. (2012). *Reducing substance use risks and harms summary.* Retrieved from www.easternhealth.ca/DownFile.Aspx?fileid=207

Elliott, D. Y., Geyer, C., Lionetti, T., & Doty, L. (2013). Managing alcohol withdrawal in hospitalized patients. *Nursing Critical Care 2013*, *42*(4), 22-30. Retrieved from http://clinicaleffectiveness.uchicago.edu/files/2013/05/managing-alcohol-withdrawal-Elliott.pdf

Freeman, T., Roche, A., Williamson, P., & Pidd, K. (2011). Hazardous alcohol use interventions with emergency patients: Self-reported practices of nurses, and predictors of behaviour. *Emergency Medicine Australasia, 23*(4), 479-489. doi: 10.1111/j.1742-6723.2011.01416.x.

Genther, D., & Gourin, C. (2012). The effect of alcohol abuse and alcohol withdrawal on short-term outcomes and cost of care after head and neck cancer surgery. *Laryngoscope*, *122*(8), 1739-1747. doi:10.1002/lary.23348

Gili-Miner, M., Béjar-Prado, L., Gili-Ortiz, E., Ramírez-Ramírez, G., López-Méndez, J., López-Millán, J. M., & Sharp. B. (2014). Alcohol use disorders among surgical patients: Unplanned 30-days readmissions, length of hospital stay, excessive costs and mortality. *Drug and Alcohol Dependence*, *137*, 55-61. doi: 10.1016/j.drugalcdep.2014.01.009.

Gordon, A., Olstein, J., & Conigliaro, J. (2006). Identification and treatment of alcohol use disorders in the perioperative period. *Postgraduate Medicine*, *119*(2), 46-55. doi: 10.3810/pgm.2006.07.1743

Government of Canada. (2013). *Alcohol abuse.* Retrieved from https://www.canada.ca/en/health-canada/services/substance-abuse/alcohol-abuse.html.

Kattimani, S., & Bharadwaj, B. (2013). Clinical management of alcohol withdrawal: A systematic review. *Industrial Psychiatry Journal*, *22*(2), 100. doi: 10.4103/0972-6748.132914

Kip, M. J., Neumann, T., Jugel, C., Kleinwaechter, R., Weiss-Gerlach, E., Mac Guill, M., & Spies, C. D. (2008). New strategies to detect alcohol use disorders in the preoperative assessment clinic of a German university hospital. *Anesthesiology: The Journal of the American Society of Anesthesiologists, 109*(2), 171-179. doi: 10.1097/ALN.0b013e31817f5be3

Melson, J., Kane, M., Mooney, R., McWilliams, J., & Horton, T. (2014). Improving alcohol withdrawal outcomes in acute care. *The Permanente Journal, 18*(2), E141-5. doi: 10.7812/TPP/13-099.

Public Health Agency of Canada. (2015). *The Chief Public Health Officer's report on the state of public health in Canada, 2015: Alcohol consumption in Canada.* Retrieved from http://healthycanadians.gc.ca/publications/department-ministere/state-public-health-alcohol-2015-etat-sante-publique-alcool/alt/state-phac-alcohol-2015-etat-aspc-alcool-eng.pdf

Repper-Delisi, J., Stern, T. A., Mitchell, M., Lussier-Cushing, M., Lakatos, B., Fricchione, G. L., ... & Capasso, V. (2008). Successful implementation of an alcohol-withdrawal pathway in a general hospital. *Psychosomatics*, *49*(4), 292-299. doi: 10.1176/appi.psy.49.4.292

The Royal College of Emergency Medicine. (2015). *Alcohol: A tool kit for improving care.* Retrieved from https://www.rcem.ac.uk/docs/College%20Guidelines/5z24.%20Alcohol%20toolkit%20(June%202015).pdf

Ryan, F., Coughlan, M., & Cronin, P. (2007). Step-by-step guide to critiquing research. Part 2: Qualitative research. *British Journal of Nursing, 16(12), 738-744.*

Statistics Canada. (2013). *Heavy drinking, by sex, province, and territories (number of persons).* Retrieved from http://www.statcan.gc.ca/tables-tableaux/sum-som/l01/cst01/health80a-eng.htm

St. Joseph's Health Care Centre. (2009). *Addiction toolkit: Dealing with alcohol problems.* Retrieved from https://www.researchgate.net/file.PostFileLoader.html?id=55496108d11b8b411d8b458a&assetKey=AS%3A273771242426372%401442283558203.

Streubert, H. J., & Carpenter, D. R. (2011). *Qualitative research in nursing: Advancing the humanistic imperative* (5th ed.). Philadelphia, PA: Lippincott Williams & Wilkins.

Sutton, L. J., & Jutel, A. (2016). Alcohol withdrawal syndrome in critically ill patients: Identification, assessment, and management. *Critical Care Nurse, 36*(1), 28-39. doi:10.4037/ccn2016420

Swift, R. A., Peers, E. A., Jones, B. L., & Bronson, M. V. (2010). Utilization of a purpose-designed chart for the nursing management of acute alcohol withdrawal in the hospital setting. *Australasian Emergency Nursing Journal*, *13*(3), 70-77. doi: 10.1016/j.aenj.2010.04.001

Tran, D. T., Stone, A. M., Fernandez, R. S., Griffiths, R. D., & Johnson, M. (2009). Changes in general nurses' knowledge of alcohol and substance use and misuse after education. *Perspectives in Psychiatric Care, 45*(2), 128-139. doi: 10.1111/j.1744-6163.2009.00213.x

Appendix A: Email to Hospital Representatives

To [Name of Surgical Nursing Manager],

My name is Megan Carey. I am a registered nurse at St. Clare's Mercy Hospital (SCMH) in St. John's, Newfoundland and Labrador. I am also a Master of Nursing student at Memorial University of Newfoundland. For my master's practicum project, I am focusing on improving the identification, prevention, and management of alcohol withdrawal in surgical patients. Through my experience in nursing and through consultations with my colleagues and manager, it became apparent that additional education regarding the identification of alcohol use disorders (AUDs) and alcohol withdrawal syndrome (AWS) is needed. Furthermore, patient educational materials on AUDs and AWS are needed, along with educational materials for nurses on policies and procedures that assist them in preventing and managing AWS. I am developing a tool kit that focuses on: (a) educating surgical patients on AUDs and AWS; and (b) educating surgical nurses on identifying AUDs and preventing, identifying, and managing AWS in surgical patients.

As part of this project, I would like to determine what resources exist within other health care facilities and authorities. I was wondering if you could please share with me any policies or procedures your facility has on the identification, prevention, and management of AWS and/or AUDs in surgical patients, as well as any educational materials on AUDs or AWS you have for surgical nurses and/or their patients.

The material you send me will be reviewed by me to identify common topics addressed by hospitals across Atlantic Canada in caring for surgical patients with AWS and/or AUDs, and in this respect, it will help inform the development of the tool kit I am creating for SCMH. I am also seeking your written permission to include your copyrighted material that you send me in the tool kit I am developing for SCMH. The copyrighted material will be referenced, and I will indicate that permission was granted from you, the copyright holder, to use the material in the tool kit. If you do not grant me written permission to include your copyrighted material in the tool kit for SCMH, I will only use the material you send me to identify common topics addressed by hospitals in Atlantic Canada.

I appreciate your time in reading this email and responding to my request. If you could please get back to me regarding whether or not you are able to assist me, I would greatly appreciate it. Please feel free to contact me at any time to discuss this further.

Thank you,

Megan Carey, BN RN
Registered Nurse, St. Clare's Mercy Hospital
St. John's, NL
709-486-9935

Appendix B: Health Research Ethics Authority Screening Tool

	Question	Yes	No
1.	Is the project funded by, or being submitted to, a research funding agency for a research grant or award that requires research ethics review	□	□
2.	Are there any local policies which require this project to undergo review by a Research Ethics Board?	□	□
	IF YES to either of the above, the project should be submitted to a Research Ethics Board. **IF NO** to both questions, continue to complete the checklist.	□	□
3.	Is the primary purpose of the project to contribute to the growing body of knowledge regarding health and/or health systems that are generally accessible through academic literature?	□	□
4.	Is the project designed to answer a specific research question or to test an explicit hypothesis?	□	□
5.	Does the project involve a comparison of multiple sites, control sites, and/or control groups?	□	□
6.	Is the project design and methodology adequate to support generalizations that go beyond the particular population the sample is being drawn from?	□	□
7.	Does the project impose any additional burdens on participants beyond what would be expected through a typically expected course of care or role expectations?	□	□
LINE A: SUBTOTAL Questions 3 through 7 = (Count the # of Yes responses)		**0**	
8.	Are many of the participants in the project also likely to be among those who might potentially benefit from the result of the project as it proceeds?	□	□
9.	Is the project intended to define a best practice within your organization or practice?	□	□
10.	Would the project still be done at your site, even if there were no opportunity to publish the results or if the results might not be applicable anywhere else?	□	□
11.	Does the statement of purpose of the project refer explicitly to the features of a particular program, Organization, or region, rather than using more general terminology such as rural vs. urban populations?	□	□
12.	Is the current project part of a continuous process of gathering or monitoring data within an organization?		**X**
LINE B: SUBTOTAL Questions 8 through 12 = (Count the # of Yes responses)		**4**	
	SUMMARY **See Interpretation Below**		

Interpretation:

- If the sum of Line A is greater than Line B, the most probable purpose is **research**. The project should be submitted to an REB.
- If the sum of Line B is greater than Line A, the most probable purpose is **quality/evaluation**. Proceed with locally relevant process for ethics review (may not necessarily involve an REB).
- If the sums are equal, seek a second opinion to further explore whether the project should be classified as Research or as Quality and Evaluation.

These guidelines are used at Memorial University of Newfoundland and were adapted from ALBERTA RESEARCH ETHICS COMMUNITY CONSENSUS INITIATIVE (ARECCI). Further information can be found at: http://www.hrea.ca/Ethics-Review-Required.aspx.

Appendix C: Eastern Health Alcohol Withdrawal Protocol

Eastern Health

ALCOHOL- SCREENING AND WITHDRAWAL PROTOCOL- ADULT ACUTE CARE	Patient/Resident/Client care PRC-003

Issuing Authority	**Pat Coish-Snow, Vice-President, Regional Acute Care** Signed by Pat Coish-Snow Dated May 20, 2011
Office of Administrative Responsibility	Professional Practice-Nursing
Author	Barb Earles and Karen Whitehorne Mental Health Nurse Consultants
Level	II (Two)
Original Approval Date	May 20, 2011
Effective Date	Upon signature
Review Date	May 2014
Revision Date(s)	

Overview

This protocol can be implemented once education is completed.

The CAGE questionnaire (Attachment A) is a validated screening tool used to identify alcoholism and therefore identifies those who may be at risk for alcohol withdrawal.

The Clinical Institute Withdrawal Assessment of Alcohol (CIWA) Scale is a validated (in non-hospitalized clients) scoring system for assessment of the severity of alcohol withdrawal symptoms. The Alcohol Withdrawal Protocol is used to provide optimum management of clients in alcohol withdrawal or clients at risk to develop symptoms of alcohol withdrawal.

Note: Clients who are already showing signs of Delirium Tremens are unlikely to respond to this protocol and may require regular dosing of Lorazepam, antipsychotic medications and a Psychiatry consult.

POLICY

All clients (aged 19 and over) who are admitted to inpatient units at the adult acute care institutions and who answer yes to drinking alcohol will be screened for alcohol withdrawal syndrome using the CAGE questionnaire.

The CAGE questionnaire will be administered **at the point of entry** into the

healthcare system (i.e. Emergency Department., Pre-Admission Clinic or direct admission to an in-patient unit).

If the CAGE questionnaire score is suggestive or diagnostic of alcoholism, a physician's signature on the doctor's order sheets (Medication, Attachment B and Non-Medication, Attachment C) is required to initiate the Alcohol Withdrawal Protocol.

Scope

This policy applies to physicians, RN's (and LPN's for the CAGE questionnaire screening) practicing in adult acute care units.

Purpose

To provide guidance to the health care professional for the optimum management of clients in alcohol withdrawal or clients at risk of developing symptoms of alcohol withdrawal.

Procedure

1. The CAGE questionnaire is performed by the nurse on all clients being admitted to adult acute care institutions to identify those at risk for alcohol withdrawal.

2. If the CAGE questionnaire score is suggestive or diagnostic of alcoholism a physician is notified by the nurse.

3. When the Alcohol Withdrawal Protocol is ordered by the physician, the RN performs the assessment and documentation of alcohol withdrawal using the Alcohol Withdrawal Assessment Record (Attachment D).

4. Surveillance is based on the assessed level of risk for harm to self or others, as well as the client's medical condition, or as ordered by the physician (Client Surveillance Policy-204(NUR)-2-020).

5. It is recommended that the same RN performs and completes the assessment record to increase the reliability of findings.

6. Lorazepam administered as part of the Alcohol Withdrawal Protocol is transcribed to the Medication Administration Record (MAR) and documented on the Alcohol Withdrawal Assessment Record.

7. Document medication administration on the Alcohol Withdrawal Assessment Record, as appropriate.

8. Notify the physician if the protocol is not controlling the signs and symptoms of alcohol withdrawal.

9. Any time there is a change in the patient status suggestive of alcohol withdrawal the CIWA should be reassessed by the RN.

Supporting Documents *(References, Industry Best Practice, Legislation, etc.)*

Hofferman, R.S., Weinhouse, G.L. (2009). Management of Moderate and Severe Alcohol Withdrawal Syndromes. http://www.uptodate.com/online/content/topic.do?topicKey=ad_tox/4456&selectedTitle=1%7E150&source=search_result
Ewing, John A. (1984). "Detecting Alcoholism: The CAGE Questionnaire" *JAMA* 252: 1905-1907,

Linkages

- Client Surveillance Policy 204(NUR)-2-020
- Hand Hygiene Policy IPC-150.
- Routine Practices Policy IPC-200
- Positive Patient Identification Policy PRC-130

Key Words

Alcohol Withdrawal
Alcohol Withdrawal Protocol
CAGE Questionnaire

Definitions & Acronyms

AWP	Alcohol Withdrawal Protocol
CAGE questionnaire	The **CAGE questionnaire**, the name of which is an acronym of its four questions, is a widely used method of screening for alcoholism.
CIWA	Clinical Institute Withdrawal Assessment of Alcohol Scale
MAR	Medication Administration Record
RN	Registered Nurse
LPN	Licensed Practical Nurse

Policy History This policy replaces the following policies:

Legacy Board	Policy #	Policy Name	Date Revised
HCCSJ	11 A-35	Alcohol Withdrawal Protocol	01 2007

Key: HCCSJ – Health Care Corporation of St. John's

Eastern Health

CAGE Questionaire

Name:

MCP#:

Chart #:

1. Have you ever felt that you should **C**ut down your drinking?. ☐ Yes ☐ No

2. Have people **A**nnoyed you by criticizing your drinking ? ☐ Yes ☐ No

3. Have you ever felt badly or **G**uilty about your drinking? ☐ Yes ☐ No

4. Have you ever had a drink upon waking to steady your nerves or to relieve a hangover (**E**ye-opener)?

Two positive responses are suggestive of alcoholism, and three or four are diagnostic.

Score _____

How much do you drink per week?

Beer _____

Wine_____

Alcohol _____

Do you think this person is at risk for alcohol withdrawal? ☐ Yes ☐ No

Signature _____

Date _____

Eastern Health

Doctor's Order Sheet
Alcohol Withdrawal Protocol
Medication

Name:

MCP#:

Chart #:

Patient's Name:_____

CIWA-Ar = Clinical Institute Withdrawal Assessment of Alcohol Scale, revised

ALLERGIES ☐ **NO KNOWN ALLERGIES**

If CIWA-Ar 10 or greater, administer the specified medication every hour at dosage corresponding to the observed CIWA-Ar score. Continue therapy until the CIWA-Ar score is less than 10 or the patient is sedated.

CIWA-Ar Score	Lorazepam Dosage	
0-9	0 mg oral/sublingual	0 mg IV
10-12	1 mg oral/sublingual	0.5 mg IV
13-14	2 mg oral/sublingual	1 mg IV
15-17	3 mg oral/sublingual	1.5 mg IV
Over 17	4 mg oral/sublingual	2 mg IV

* Conversion Chart: Every 0.5 mgs of IV Lorazepam is equivalent to 1mg of oral or sublingual Lorazepam

1. Thiamine 100 mg IV or IM for the first dose.
   Then
   Thiamine 100 mg PO or IM or IV daily.

2. ☐ Multivitamins one tablet PO daily
   or
   ☐ Multivitamins 10 mL in 500 mL of normal saline IV over 2 hours daily.

3. Folic acid 1 mg PO daily

Consultation request:

☐ Psychiatry, if suspected psychiatric illness, (visual, auditory, and tactile hallucinations), especially if delirium tremens present

☐ Social Work

☐ ICU: If significant cardio/respiratory and/or Central Nervous System changes.

Medications for complications of withdrawal require separate orders.
Seizures require Benzodiazepine therapy regardless of CIWA-Ar scores.
Beta Blockers may mask the early symptoms of withdrawal

Physician' s Signature: _____ Date: DD/MONTH/YYYY Time: _____

Nurse's Signature: _____ Date: DD/MONTH/YYYY Time: _____

Nurse's Signature: _____ Date: DD/MONTH/YYYY Time: _____

White Copy - Chart Yellow Copy - Pharmacy

ch-0382 2011/01

Eastern Health

Doctor's Order Sheet
Alcohol Withdrawal Protocol
Non-Medication

Name:

MCP#:

Chart #:

CIWA-Ar = Clinical Institute Withdrawal Assessment of Alcohol Scale, revised

ALLERGIES ☐ **NO KNOWN ALLERGIES**

Preamble: The following orders are appropriate after a clinical diagnosis of Alcohol Withdrawal Syndrome (DSMIV) is confirmed. This order sheet is not to be used for alcohol intoxication without features of withdrawal. Other related diagnoses such as polydrug withdrawal, hypoxia, and other causes of delirium must be excluded.

1. Monitor CIWA-Ar scale, blood pressure, temperature, pulse and respirations **hourly** until CIWA-Ar score is 10 or less for **three** consecutive measurements.

Then:

- Every 4 hours for 12 hours.
- Every 12 hours for 7 days.

2. After 10 days of doing CIWA scale once daily, the protocol may be discontinued.
3. If scale is 10 or greater, resume hourly assessment.
4. **When possible**, consistency in nursing staff is desirable to increase reliability of ratings.
5. **Call physician if:**

Vital Signs parameters (optional) _____
Respirations less than 10 per minute
Change in mental status or obtundation
CIWA-Ar score increase of more than 10 over the previous measurement
Cumulative dose in the first 24 hour period or any subsequent 24 hour period.
Lorazepam 16 mg IV
Lorazepam 32 mg Oral/Sublingual

*Conversion Chart: Every 0.5 mgs of IV Lorazepam is equivalent to 1mg Oral/Sublingual Lorazepam

Management considerations:

Investigations (note: lab mnemonic for all tests is /AWS)

☐ Albumin
☐ Blood Alcohol Level
☐ Blood and Urine Toxic Screen (if clinically indicated)
☐ Calcium
☐ CBC
☐ Chest X-ray (PA/Left LAT)
☐ Glucose
☐ Creatinine
☐ EKG
☐ GGT
☐ LFT's
☐ Electrolytes
☐ Magnesium
☐ Inorganic Phosphate
☐ PT/INR
☐ Urinalysis
☐ Urea

Physician' s Signature: _____ Date: _____ Time: _____

Nurse's Signature: _____ Date: _____ Time: _____

Eastern Health

Alcohol Withdrawal Assessment Record

Name:

MCP#:

Chart #:

Year Month Date:																		
Time:																		
Nausea & Vomiting																		
Tremor																		
Paroxysmal Sweats																		
Anxiety																		
Agitation																		
Tactile Disturbances																		
Auditory Disturbances																		
Visual Disturbances																		
Headache, Fullness in Head																		
Orientation/Clouding of Sensorium																		
Total Score																		
Respirations																		
Lorazepam dose (mg)																		
Initials																		

CLINICAL INSTITUTE WITHDRAWAL ASSESSMENT OF ALCOHOL SCALE, REVISED (CIWA-Ar)

NAUSEA & VOMITING
Ask " Do you feel sick to your stomach? Have you vomitted?" Observation.
0 No nausea & no vomiting
1 Mild nausea with no vomiting
4 Intermittent nausea with dry heaves
7 Constant nausea, frequent dry heaves and vomiting

TREMOR
Arms extended and fingers spread apart. Observation
0 No tremor
1 Not visible, but can be felt fingertip to fingertip
4 Moderate, with patient's arms extended
7 Severe, even with arms not extended

PAROXYSMAL SWEATS
Observation
0 No sweat visible
1 Barely perceptible sweating, palms moist
4 Beads of sweat obvious on forehead
7 Drenching sweats

ANXIETY Ask " Do you feel nervous?" Observation
0 No anxiety, at ease
1 Mild anxious
4 Moderately anxious, or guarded, so anxiety is inferred
7 Equivalent to acute panic states as seen in severe delirium or acute schizophrenic reactions

AGITATION Observation
0 Normal activity
1 Somewhat more than normal activity
3 Moderately fidgety and restless
7 Paces back and forth during most of the interview, or constantly thrashes about

TACTILE DISTURBANCES Ask " Have you any itching, pins and needles, burning, numbness or do you feel bugs crawling on or under your skin?"Observation
0 None
1 Very mild itching, pins & needles, burning or numbness
3 Moderate itching, pins & needles, burning or numbness
5 Severe hallucinations
7 Continuous hallucinations

AUDITORY DISBURBANCES 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
3 Moderate harshness or ability to frighten
5 Severe hallucinations
7 Continuous hallucinations

VISUAL DISTURBANCES Ask " Does the light appear to be to bright? Is its color different? Does it hurt your eyes? Are you seeing anything that is disturbing to you? Are you seeing things that you know are not there?" Observation
0 Not present
1 Very mild sensitivity
3 Moderate sensitivity
5 Severe hallucinations
7 Continuous hallucinations

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 No present
1 Very mild
3 Moderate
5 Severe
7 Extremely severe

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

Nurse's Signature/Status	Initials	Nurse's Signature/Status	Initials	Nurse's Signature/Status	Initials

ch-0385 2002/03

Appendix D: Queen Elizabeth Hospital Resources

QUEEN ELIZABETH HOSPITAL
QEH
PRINCE EDWARD ISLAND
A division of Health PEI

Preoperative Guide for the Surgical Patient

Patient Label

Surgery Arrival Time

- The day before your surgery **call Same Day Surgery** at (902-894-2245) between **2:30 and 3:30 pm** to obtain your arrival time.
- For Monday surgeries, please call on Friday
- For days, when there is a stat holiday please call the last business day before your surgery

Fasting: when patients are to stop eating and drinking:

- Do NOT eat food after midnight before surgery day
- Do NOT chew gum , do not eat mints or candy after midnight before surgery day
- **Clear fluids** can be taken up **until 3 hours prior to your scheduled surgery time**- this time will be provided to you when you call us for your arrival time (day before surgery)
- Examples of clear fluids are water, popsicles, Jello-O, fruit juices **without pulp**, sports drinks (Gatorade) or carbonated beverages including dark sodas (Cola), clear tea and black coffee **(no milk).**
- **Clear fluids DOES NOT include**: milk, dairy products, protein drinks or alcoholic beverages
- **For Patients with Insulin Dependent Diabetes only** – For your safety, please bring dextrose tablets, regular pop, or juice (without pulp) containing one teaspoon of sugar while traveling to the hospital on the morning of your surgery. If you experience symptoms of low blood sugar, please eat or drink the product you have taken with you.

Pediatric Patients:

- Infant formula is not to be given after midnight (follows solid food guidelines)
- Breast Milk can be given until 4 hours prior to surgery

To prepare for Surgery

- Shower or bath the evening before or the morning of surgery.
- Arrive at the hospital at the specified time.
- Come through the main hospital entrance and **register** at the **Admitting Department.**
- Bring your PEI Health Card and any private insurance cards with you.
- Bring a case(s) for your eye glasses, contact lenses, hearing aid(s) and dentures
- Bring all your medications in their original bottles to the hospital on the day of your surgery including prescription medications, insulin, herbal medications, vitamins, inhalers etc.
- **Take the following** prescription medications with a sip of water before 06:30 am the morning of your surgery:
  - blood pressure medication
  - seizure medication
  - asthma / chest medication (inhalers)
  - stomach medications.
- **Do not** take the following medications on the morning of your surgery unless instructed otherwise:
  - **Insulin**
  - **Diabetic pills**
  - **Fluid pills**
- **Do not** stop taking these medications without your doctor's advice
  - **Blood Thinners (i.e Aspirin, Plavix, Warfarin)**
  - **Anti-Inflammatories (i.e. Naprosyn, Advil, Ibuprophen)**
  - **Birth Control Medications**
- **Stop** taking Herbals and Vitamins **one (1) week** before surgery (except Vitalux).

Additional Instructions

For Your Safety

- Notify your physician of any change in your health, such as a cold, fever or sore throat.
- If you become diagnosed with an antibiotic resistant organism (ie. MRSA, VRE, or ESBL) or a Latex allergy, please inform your surgeon as soon as possible **prior to surgery**.
- All patients need to be accompanied to the surgery area by a family member / friend.
- A parent / guardian is expected to stay in the hospital until the child's surgery is over and must remain with the child while he/she is in the hospital.
- Do not shave near your surgical site. Shaving can irritate your skin, which may lead to infection.
- Nail polish / gel nails should be removed prior to surgery
- QEH is scent free. Do not wear lotions, powders, perfumes, makeup or nail polish.

Patients who will be admitted after surgery

- Please be advised that you may be admitted to a co-ed room
- Please leave all personal belongings' in your vehicle until you are transferred to your in patient unit as space is limited.
- Please do not bring valuables with you.
- Please leave large sums of money (over $20.00), all electronic devices and jewelry (including body piercing, etc) at home.
- If you are to remain in hospital after your surgery only bring essential and unscented toiletry items.
- Rings which cannot be removed may need to be cut off before your surgery.
- Your length of stay in the hospital will depend on the type of surgery you have and how well you are recovering. Plan ahead for going home. Let staff know if you feel you will need assistance at home after discharge.
- **Discharge from in-patient units is between 9:00 -11:00 a.m.**

Patients having day surgery procedures

- Do not drive a motor vehicle for 24 hours following your surgery.
- Do not operate machinery or power tools for 24 hours following your surgery.
- Do not drink alcoholic beverages for 24 hours prior to and following surgery.
- Day Surgery patients are **not allowed** to drive themselves home and must have arrangements for someone else to drive them.
- Day Surgery patients are required to have a responsible adult stay with you for the first 24 hours following surgery.

For Your Information

- If you are cancelling your surgery, please contact the surgical Booking Office at 894-2239 as soon as possible. On evenings or week-ends call Admitting Department at 894-2232. A twenty-four (24) hour advance notice would allow time for another patient to be rescheduled in your place.
- Because urgent surgery cases can occur, there may be a delay in the start of your surgery or your start time could be earlier than expected if last minute cancellations occur.
- Every surgery or procedure is unique. Therefore, you should always consult your physician with specific questions about your surgery or procedure.
- Smoking increases your risk of serious complications. Do not smoke for 12 hours before surgery. If surgery is planned in advance, stop smoking for at least six weeks. There is help for coping with not smoking. Speak to your doctor about nicotine replacement therapy and counseling for a smoking quit.

Discharge

- A nurse will review your post-operative instructions and prepare you for discharge from the hospital.
- If you experience any unusual symptoms after your discharge, go to the Emergency Department.

Hospital staff is not responsible for lost or stolen items.

46-H-32 (12/16)

Appendix E: Semi-structured Interview Questions

The following questions will be used to guide the general interview with nursing staff, manager, educator, and physicians:

1. I am developing a tool kit to assist nurses in identifying alcohol use disorder, as well as to assist in identifying, preventing, and managing alcohol withdrawal in surgical patients. Is there anything that comes your mind that you think I should include?

2. What is your background knowledge of this issues? Did you ever receive specific training about the AUDs, AWS, and the alcohol withdrawal protocol?

3.What issues surround patients receiving effective and timely treatment for alcohol withdrawal?

4. Have patients or family members ever raised concerns regarding AUDs or AWS in the surgical setting?

5. What education do you think patients and their families need regarding AUDs or AWS?

6. Are there common mistakes you seen in practice with nurses caring for surgical patients experiencing AWS?

7. What are some ways you identify AUDs and AWS in practice?

8. What additional measures do you think could be used to improve patient outcomes and reduce the burden of alcohol withdrawal in the surgical setting?

9. Is there anything you would like to have more education/information about?

10. Is there anything else I should consider?

More specific questions to include for nursing manager and clinical educator:
1. Do you ever receive questions regarding AWS in surgical patients? If so, what are some common questions or concerns from staff?

2. In your time here, have there been any incident reports related to this? If so, what is the nature of these reports?

Appendix C: Tool Kit

Identifying, Preventing, and Managing Alcohol Withdrawal in the Surgical Patient within Eastern Health

A Tool Kit for Nurses in Surgical Care

Developed by © Megan Carey, BN, RN

Introduction

Despite the harmful consequences associated with the intake of large amounts of alcohol, many Canadians still partake in various types of harmful drinking patterns. A high level of alcohol consumption was listed by the World Health Organization (WHO) as the third highest risk factor for poor health (WHO, 2017). In 2013, it was estimated that approximately 3.1 million legally aged Canadians consumed enough alcohol to be at immediate risk for injury or harm, while 4.4 million Canadians consumed enough to be at risk for chronic health effects, such as liver cirrhosis or various forms of cancer (Public Health Agency of Canada [PHAC], 2015). High alcohol consumption leads to additional negative physical, emotional, social, and economic consequences for the Canadian population, such as increased rates of premature death, disability and disease, impaired driving, violent crimes, abuse, injury, and reduced productivity (PHAC, 2015). High alcohol consumption also places an extensive strain on the health care system. In 2002, alcohol use cost the country over 3 billion dollars in acute care hospitalizations, a statistic that has yet to be replicated, but alludes to the current high costs of alcohol use to the health care system (PHAC, 2015).

Not all alcohol consumption, however, is considered to be dangerous in the long term. Factors, such as how much alcohol is consumed, how often the person drinks, what they are doing while drinking, and their underlying health, contribute to the effects alcohol has on the person (PHAC, 2015). Individuals who partake in heavy drinking or who are alcohol dependent are at risk for significant compromises in their health. There is a further risk for negative health consequences when patients who partake in heavy alcohol consumption are admitted to hospital for surgical procedures (Kip et al., 2008). This is due to the complications associated with the sudden cessation of alcohol consumption and onset of alcohol withdrawal syndrome (AWS) in association with an already demanding recovery process.

In frontline care, nurses are often faced with the complex task of caring for patients who are undergoing both surgical recovery and alcohol withdrawal. As nurses tend

to have the most frequent contact with surgical patients, it is within the responsibility of the nurse to identify alcohol use through screening, and to prevent and manage AWS through the use of medical treatments (Elliott, Geyer, Lionetti, & Doty, 2013).

The care of these patients is often complex and multifaceted. This makes it exceptionally difficult for nurses to manage AWS if they do not have the appropriate knowledge and resources to assist them (Berl et al., 2015; Freeman, Roche, Williamson, & Pidd, 2011). To help ensure that nurses have the knowledge to provide care to this patient population, this tool kit was designed to meet the specific needs of surgical nurses at St. Clare's Mercy Hospital (SCMH) as determined through a review of relevant literature and key informant interviews with members of the surgical team.

Why is this Tool Kit Important?

The surgical program at SCMH is prone to having a large number of patients who have alcohol use disorders (AUDs) and experience AWS. This problem stems from a number of factors, including:

1. Newfoundland and Labrador has one of the highest rates of excessive alcohol consumption in the country, with 27% of the population engaging in harmful drinking patterns (Eastern Health, 2012; Statistics Canada, 2013).

2. The high incidence of AUDs in patients admitted to hospital for medical-surgical reasons.

   One in four patients admitted to hospital for medical-surgical reasons have an AUD (Jane, 2010). Additionally, as many as 66%-82% of surgical patients who consume greater than 6 drinks per day experience increased complications associated with AWS (Genther & Gourin, 2012; Melson, Kane, Mooney, McWilliams, & Horton, 2014).

3. Alcohol withdrawal is difficult to detect. Patients who drink excessively and are at risk for alcohol withdrawal are not always obvious.

Patients often do not realize they have a problem or minimize the amount they drink due to embarrassment. Also, patients may not recognize how severely alcohol withdrawal may impact their lives, leading to an underreporting of alcohol abuse (Jane, 2010; Repper-DeLisi et al., 2008).

4. Research has shown that the main barrier to the identification of AUDs in surgical patients is the lack of knowledge on alcohol withdrawal screening and treatments in nursing staff (Berl et al., 2015; Freeman et al., 2011; Tran, Stone, Fernandez, Griffiths, & Johnson, 2009; Tsai et al., 2011).

   Providing additional education for nurses on this topic has resulted in nurses having significantly better understanding of the treatments for AWS, and a better adherence to the protocols for AUDs and AWS management as outlined by their employer (Berl et al., 2015; Tran et al., 2009).

Research has indicated that if AUDs and AWS are not detected in a timely manner by health care professionals, the risk for postoperative complications, prolonged hospital stays, intensive care admissions, morbidity, and mortality increase significantly (Genther & Gourin, 2012; Gordon, Olstein, & Conigliaro, 2006). Therefore, providing more information to nurses on how to manage AUDs and AWS in the surgical setting is essential to their success in providing care to this population.

Purpose of the Tool Kit

The main purpose of this tool kit is assist surgical nurses at SCMH in identifying extensive alcohol consumption and AUDs, as well as to assist them in identifying, preventing, and managing AWS in patients under their care.

More specifically, this tool kit can be used by nurses in this setting to:

1. Provide additional information for nurses regarding: alcohol; effects and risks of alcohol consumption; types of alcohol consumption; identifying AUDs through symptom recognition and screening processes; AWS; populations at risk; identifying and preventing AWS though recognition of signs and symptoms, patient assessments, and screening; and managing alcohol withdrawal through medical treatments and interventions.

2. Inform and guide nurses in their practice when caring for patients who are at risk of AWS, or who are experiencing AWS.

3. To assist nurses in correctly using the alcohol withdrawal protocol put in place by Eastern Health.

4. To inform other health care professionals who may also be interested in learning more about AUDs and AWS in surgical patients.

5. To further educate patients on the importance of self-reporting accurate alcohol consumption prior to undergoing surgical procedures, or on admission to hospital.

Table of Contents

Section One

Background Information: Better Understanding of Alcohol and Alcohol Use

Contents

Section 1.1. Alcohol

What is alcohol?

Due to the popularity of alcohol consumption, and the widely-consumed nature of the beverage, many members of the general population are unaware that alcohol is a psychoactive drug (PHAC, 2015).

Alcohol is defined as a beverage that contains **ethyl alcohol or ethanol** that exists as a synthesized product or as a fermented form of carbohydrates (Myers & Isralowitz, 2011). Although alcohol is most commonly made from a variety of fruits, vegetables, grains, and yeast, it contains empty calories and has no nutritional value.

Alcohol is classified as a central nervous system (CNS) depressant, meaning it affects the brain by slowing down the vital functions of the CNS. This places alcohol within the same drug classification as benzodiazepines and barbiturates, associating it with severe morbidity and mortality rates (Halter, 2014).

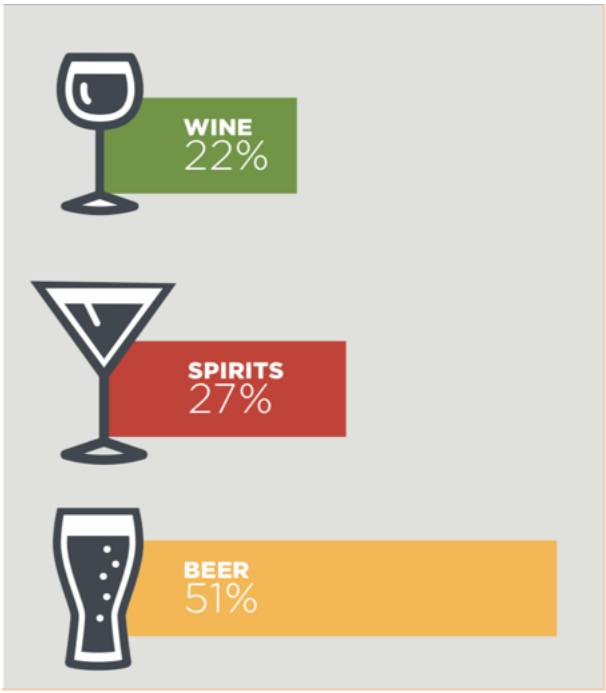


Figure 1 Most popular alcohol beverages consumed by Canadians
Retrieved from: http://healthycanadians.gc.ca/publications/department-ministere/state-public-health-alcohol-2015-etat-sante-publique-alcool/alt/state-phac-alcohol-2015-etat-aspc-alcool-eng.pdf

Section 1.2. Effects of Alcohol

Alcohol has a variety of short-term and long-term effects on the body, which are determined by how much and how often alcohol is consumed (PHAC, 2015). These outcomes are also affected by the person's individualized risk factors, activities they partake in while drinking, and if they have any existing co-morbidities (Government of Canada, 2013).

Like all food and beverages, alcohol first passes through the gastrointestinal system. It works its way from the pharynx through the esophagus and into the stomach,

where 20% of the alcohol is absorbed into the bloodstream. From there, the remaining alcohol travels through the intestines, where it is absorbed into the bloodstream at an even faster rate (Myers & Isralowitz, 2011). Once in the bloodstream, alcohol makes its way to the major organs, including the liver and the brain, resulting in the short-term and long-term effects that alcohol has on the body (Myers & Isralowitz, 2011).

Short-Term Effects:

The short-term effects of alcohol use come from the depressant effects that alcohol has on the following neurotransmitters: gamma-aminobutyric acid (GABA), glutamate, and dopamine (Myers & Isralowitz, 2011). This effect on the receptor sites results in the physiological effects associated with drinking, such as loss of motor control or improvement in mood.

The most common effects of alcohol consumption include:

- Decreased anxiety
- Increased self-esteem
- Impaired judgement
- Feelings of euphoria
- Drowsiness
- Upset stomach with vomiting
- Impaired decision making
- Slurred speech
- Release of inhibitions and tension
- Double vision
- Stupor
- Unconsciousness
- Flushed face
- Dizziness

The short-term effects associated with alcohol use begin as soon as a person consumes alcohol and are dependent on the amount consumed. The relationship between the number of alcoholic beverages consumed and the effects experienced by drinkers can be seen in Figure 2.

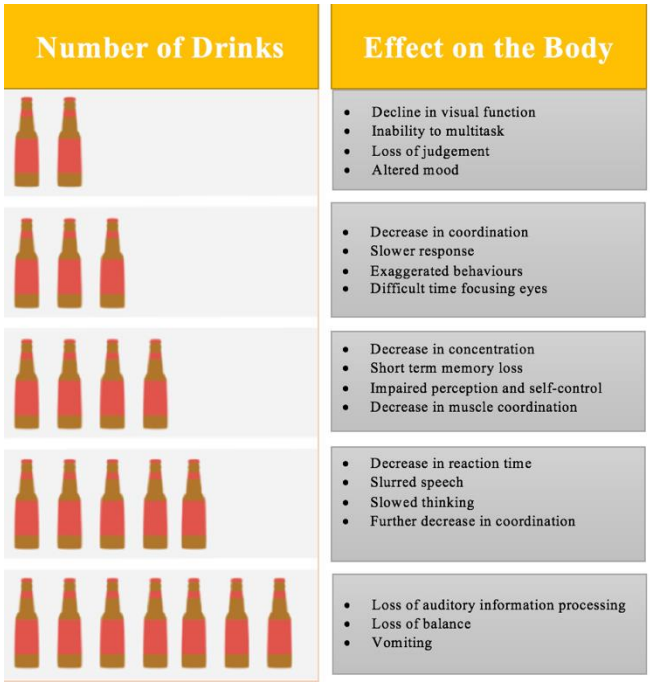


Figure 2 Effects of alcohol on body in relation to number of drinks consumed
Information Retrieved from: https://healthblog.uofmhealth.org

Long-Term Effects

Although the short-term effects on the CNS are the most easily recognizable, alcohol has a number of effects on a variety of organs. These effects, however, are the result of regular alcohol consumption of more than two drinks a day over a number of years, rather than casual alcohol use (PHAC, 2015). The more the person drinks, the more likely they are to develop injury to their organs, resulting in a number of co-morbidities.

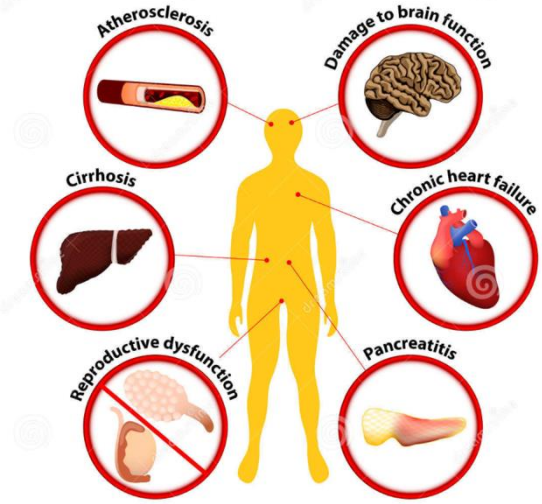


Figure 3 Long term effects of alcohol use on major organs
Retrieved from https://www.quitalcohol.com/the-truth-about-what-alcohol-does-to-your-body.html

The most common long-term effects of alcohol consumption include:

- Heart disease
  - Coronary disease
  - Peripheral artery disease
  - Heart failure
  - Stroke
  - Hypertension
  - High cholesterol
- Certain types of cancer
  - Oral
  - Pharyngeal/ Esophagus
  - Colorectal
  - Breast
  - Liver
  - CNS cancers
- Liver disease
- Brain damage
- Memory loss
- Impotence
- Reproductive problems
- Stomach ulcers
- Disorders of the pancreas (e.g., pancreatitis)
- Disruptions in family and social life
- Disruption in work life
- Wernicke-Korsakoff Syndrome

(Beckman Murray, Proctor Zentner, Pangman, & Pangman, 2009; PHAC, 2015)

Approximately 20% of the entire Canadian population are at risk for long-term health effects related to alcohol consumption, due to the toxic effect alcohol has on the heart, liver, pancreas, and nervous system (PHAC, 2016, p. 25).

Section 1.3. Risks Associated with Alcohol Use

Outside of its long-term health effects, alcohol use is also associated with other negative outcomes. Alcohol consumption can decrease inhibitions, and encourage feelings of confidence and invincibility (PHAC, 2015). It can also affect a person's reasoning and judgment, causing them to act in a way that they normally would not.

This results in an increase in risky behaviors when alcohol is being consumed, which potentially could lead to a variety of negative outcomes, such as:

- Impaired driving
- Accidents and injuries, such as falls, burns, drowning
- Increased rates of violence, assaults, suicides, and homicides
- Risky or unprotected sex resulting in unwanted pregnancies, and increased rates of sexually transmitted infections
- Sexual assault
- Social rejection
- Child and spousal abuse
- Martial dissatisfaction and divorce
- Poor academic performance
- Impaired occupational functioning, and unemployment
- Drug use

(PHAC, 2015)

Additionally, any amount of alcohol consumption during pregnancy could also lead to adverse consequences for the mother, but most particularly for the baby. Alcohol travels through the mother's bloodstream through the umbilical cord to affect the child while in utero.

This can lead to a number of negative outcomes, such as miscarriage, still birth, and fetal alcohol spectrum disorders (FASD) that can result in a range of lifelong physical, behavioral, and intellectual problems, such as:

Abnormal physical features
  - Small head
  - Short height
  - Underweight
- Abnormal facial features
- Hyperactive behavior
- Learning difficulties
- Speech delays
- Low IQ
- Poor coordination and memory
- Poor reasoning and judgment
- Sleep and suckling problems as a baby
- Vision or hearing problems
- Problems with heart, kidneys, or bones.

(Center for Disease Control, 2016)

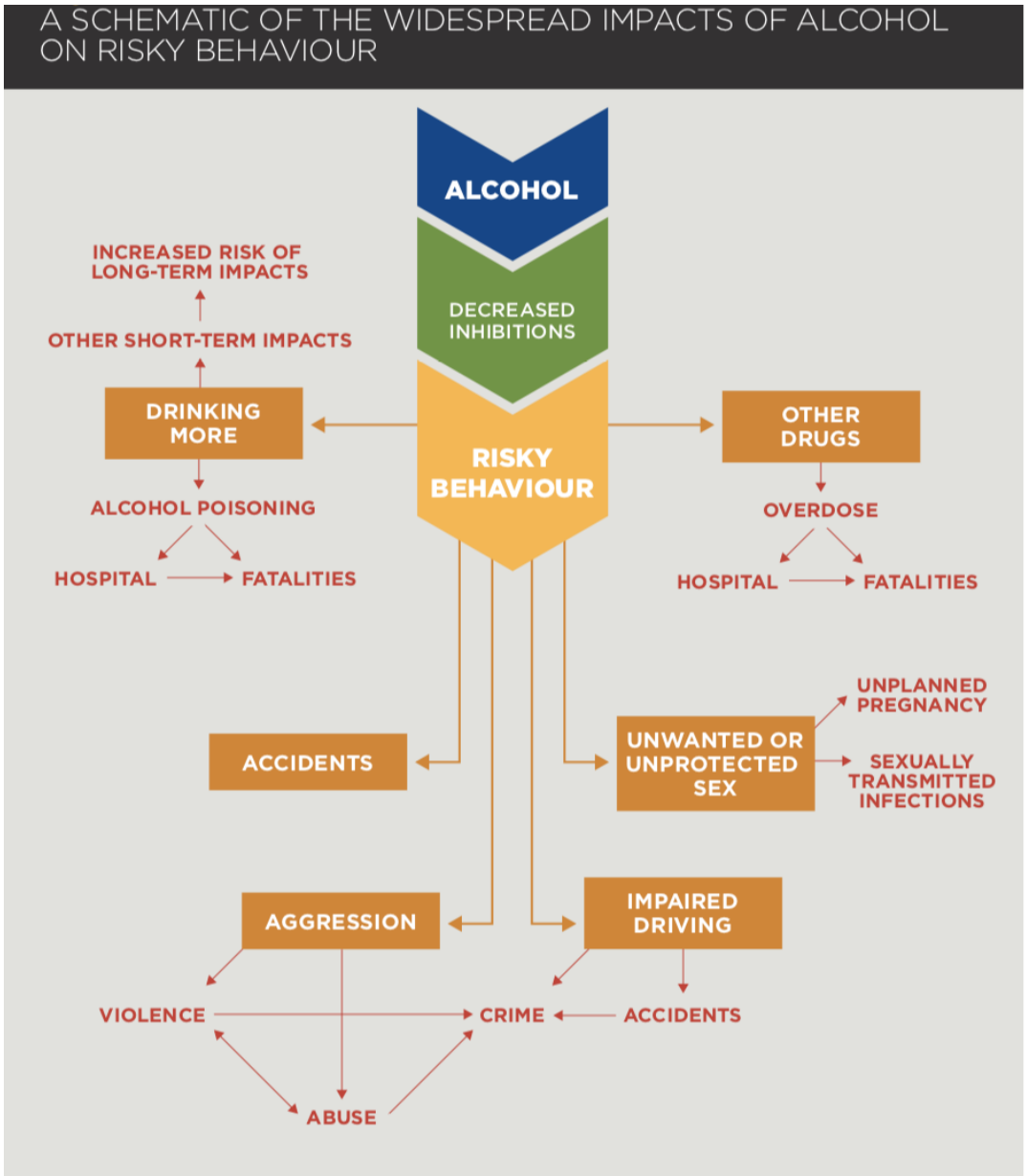


Figure 4 The widespread impacts of alcohol use on the Canadain population
Retrieved from http://healthycanadians.gc.ca/publications/department-ministere/state-public-health-alcohol-2015-etat-sante-publique-alcool/alt/state-phac-alcohol-2015-etat-aspc-alcool-eng.pdf

Section Two

Identifying Alcohol Use Disorders

Contents

Section 2.1. Types of Alcohol Use

How is alcohol use classified?

People engage in alcohol use for a variety of reasons; however, there are generally four main reasons why people drink. These include to socialize, to enhance mood, to cope, and to conform (PHAC, 2015). A person's alcohol use is classified based on how many **standardized drinks** the person consumes within a specific time period. The type of drinking engaged in is used to determine the risk of a person developing AWS (Royal College of Physicians, 2010).

Classifications of alcohol use include:

- Low risk drinking
- Harmful/ hazardous drinking
- Alcohol dependence.

Any drinking that is classified as excessive, causing long-term consequences can be referred to as an **alcohol use disorder (AUD**; Kip et al., 2008).

What is a standard drink?

A **standard drink** refers to the amount of alcohol that is in the drink that is being consumed, not the amount of liquid in the glass, can, or bottle (National Institute on Alcohol Abuse and Alcoholism [NIAAA], 2017). Since different alcoholic beverages have different amounts of alcohol in them, to adequately measure the amount of alcohol consumed it is important to recognize the differences.

"One" standard drink contains approximately 14 grams of pure alcohol, which is found in:

- 341 ml (12 ounces) of regular strength beer
- 236 ml (8 ounces) of malt liquor
- 142 ml (5 ounces) of wine
- 43 ml (1.5 ounces) of distilled spirits (also known as straight liquor), including beverages such as gin, rum, tequila, and whisky

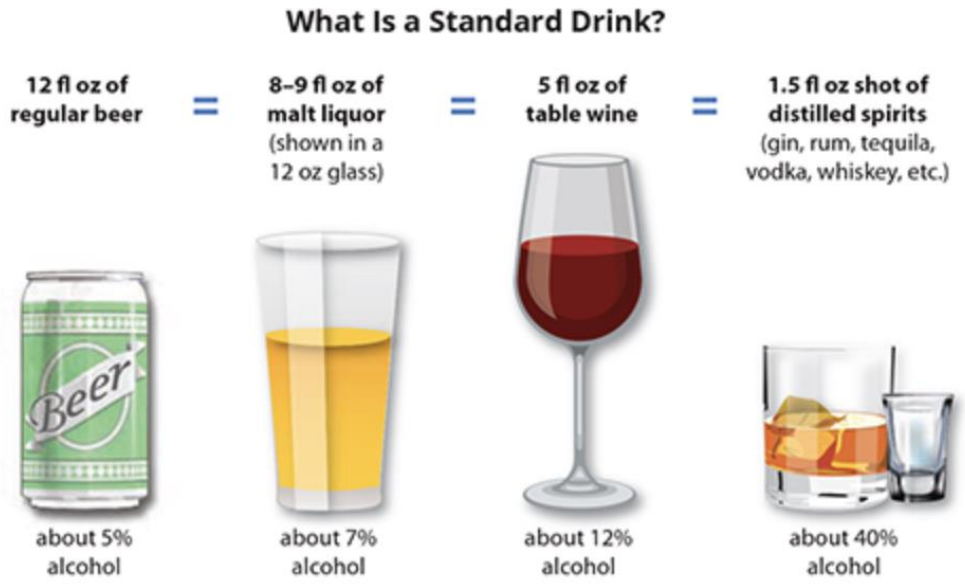


Figure 5 Comparing standard drinks
Retrieved from: https://www.niaaa.nih.gov/alcohol-health/overview-alcohol-consumption/what-standard-drink

What is Low-Risk Drinking?

According to the Canadian Centre for Addiction and Mental Health (CAMH, 2012), low-risk drinking is defined as reducing the risk of long-term health effects by:

1. Women drinking less than 10 drinks per week, with no more than two drinks most days, and men drinking less than 15 drinks per week, with no more than three drinks most days.

2. Planning non-drinking days per week.

3. Women avoiding drinking no more than 3 drinks on a single occasion, and men avoiding drinking no more than 4 drinks on a single occasion.

4. Planning a safe environment to drink in, and avoiding driving, operating machinery, taking other drugs while drinking, doing any kind of dangerous physical activity, making important decisions, and being responsible for the safety of others (e.g., small children).

5. Not consuming alcohol if you have mental or physical health problems, a history of alcohol dependency issues, or if you are or are planning to be pregnant.

6. Avoiding underage drinking.

To consume alcohol is a choice; by making the choice to drink in smaller amounts and consume alcohol at times when it is safe to do so classifies a person as a low-risk drinker or occasional drinker.

What are alcohol use disorders?

AUDs is a broad definition that is used to describe excessive drinking patterns in individuals. This term incorporates a variety of patterns of alcohol misuse, such as **harmful or hazardous drinking** and **alcohol dependency** (Kip et al., 2008).

The term AUDs is multidimensional and it is diagnosed in individuals that have:

- Experienced significant impairment or distress due to drinking
- Increased tolerance to alcohol and its effects
- Inability to control the quantity and frequency of alcohol consumption
- Exhibited signs and symptoms of alcohol withdrawal when alcohol consumption is decreased or ceased
- Decreased mood or increased irritability when not consuming.

(NIAAA, 2017)

AUDs are a group of chronic conditions that result from a variety of genetic, psychosocial, and environmental factors. Some research suggests that genetics account for 50% of the risk for developing an AUD, while socioeconomic status, life circumstances, occupational choices, and biology account for the other 50% (PHAC, 2015).

What is harmful/ hazardous drinking?

Harmful or hazardous drinking refers to drinking that is excessive and dangerous, but is not classified as a dependence. It is defined as alcohol use that is actively causing damage to a person's physical or mental health.
Heavy drinking is classified in:

- People who participate in binge drinking
- Women who drink more than 8 drinks per week
- Men who drink more than 15 drinks per week
- Underage drinking
- Drinking while pregnant

(CDC, 2018)

Binge drinking refers to drinking too much alcohol in a short period of time. For **women**, this means drinking **4 or more drinks in a single sitting,** and for men this means **drinking 5 or more drinks in a single sitting** (CDC, 2018). Partaking in binge drinking does not necessarily classify a person as alcohol dependent, however it is classified as a pattern of harmful drinking that puts a person at risk for short-term and long-term effects of alcohol use.

Figure 6 Types of excessive alcohol use
Retrieved from https://www.cdc.gov/alcohol/fact-sheets/alcohol-use.htm

What is alcohol dependence?

Alcohol dependence or alcoholism is the most severe of the AUDs. It is defined as a craving, tolerance, and preoccupation with alcohol (Kip et al., 2008). People who are alcohol dependent continue to drink although they are aware of the harmful consequences. Alcohol becomes a central component in the person's life, as they become more physically dependent on its consumption.

It is common for a person with alcohol dependence to give up important activities or relationships because of the effect alcohol has on their life, as it eventually results in the person spending more of their time thinking about alcohol or engaging in activities necessary to obtain, consume, or recover from alcohol. At this time, the person becomes at risk for **alcohol withdrawal syndrome (AWS)** if their alcohol consumption is suddenly decreased or ceased. This forces the person to continue their regular drinking habits to avoid feeling these negative effects.

Section 2.2. Signs and Symptoms of AUDs

Although AUDs have been confirmed to lead to considerable health consequences, such as negative health outcomes and postoperative complications, the rate of diagnosis remains unsatisfactorily low within the hospital setting (Kip et al., 2008). AUDs are often difficult to identify, due to screening processes relying heavily on the self-reported amounts of alcohol consumption. This makes it imperative for health care professionals to know the **signs and symptoms of AUDs** and to conduct accurate screening for improved patient outcomes (Kip et al., 2008).

The severity of AUDs is classified as **mild, moderate, and severe** depending on how many of the diagnostic criteria the person meets (Kip et al., 2008; PHAC, 2015). These criteria are outlined by the Diagnostic and Statistical Manual of Mental Disorders (DSM-5) and the International Statistical Classification of Diseases (ICD 10), and depict the signs and symptoms of AUDs.

What are the signs and symptoms of AUD?

AUD is likely in an individual when:

1. Alcohol is often consumed in larger amounts and over longer periods than the person intends.
2. There is a desire to cut down on drinking, but attempts are unsuccessful.
3. A large amount of time is spent obtaining alcohol, using alcohol, or recovering from its effects.
4. Alcohol is craved, and there is a strong urge to consume alcohol.
5. Alcohol use has resulted in a failure to complete major obligations at work, school, or home.
6. Alcohol use is continued even though there are recurring social or interpersonal problems in the person’s life.

7. Activities important to the person are given up or reduced because of alcohol use.
8. Alcohol is used in situations that are physically hazardous.
9. Alcohol use is continued even though the person is aware that it is causing or exacerbating persistent physical and psychological problems.
10. **Tolerance** is developed.
11. Symptoms of **withdrawal** manifest when drinking is ceased or decreased.

(NIAAA, 2017)

Tolerance: is defined as a need for increased amounts of alcohol to achieve the desired effect or intoxication ***OR*** as a noticed diminished effect with continued use of the same amount of alcohol (PHAC, 2015).

Withdrawal: is defined as the symptoms of **alcohol withdrawal syndrome** (AWS) that can be decreased through alcohol use. This topic that will be further discussed in **Section 3.**

Are there other warning signs of AUDs?

Although the ICD 10 and the DSM-5 outline the signs of AUDs in a very detailed manner, there are other signs and symptoms that could suggest a person is suffering from AUDs.

Figure 7 Signs of Alcohol Addiction
Retrieved from http://www.myfuturehealth.com/uaa/4#topic6

These include:

- Denial – the hiding of drinking from family or friends; thinking drinking is not an issue when it is
- Loss of appetite, chronic upset stomach
- Decrease sex drive / impotence
- Injuries/ accidents that cannot be explained
- Black outs – periods where the person cannot remember what happened during drinking
- Drinking to feel better or relax
- Increase in emotional outbreaks or demonstrations of inappropriate anger
- The inability to quit drinking
- The lack of self-control – the person cannot leave unfinished alcohol
- Insomnia or inability to sleep.

(NIAAA, 2017)

Section 2.3. Tools for Identifying AUDs

Although there are clear criteria that outline the presence of AUDs, early identification of AUDs in the hospital setting remains a complex task, due to how a person's medical history is collected. Nurses are not able to assess all of the criteria outlined by the ICD 10 or the DSM-5 because they do not witness the person's drinking firsthand. Patients are responsible for self-reporting their history on

admission to hospital. Therefore, if patients do not accurately report their drinking, nurses may not be aware that the person is at risk for AWS.

Drinking is under reported or not reported for a number of reasons, including:

- An underestimation of the amount they drink.
- The stigma associated with heavy drinking.
- A lack of understanding about how dangerous alcohol consumption can be.
- Embarrassment of their alcohol use patterns.

(Jane, 2010)

In order for nurses and other health care professionals to have an idea of a person's drinking habits, a variety of screening instruments have been developed to detect AUDs. These tools can be used to systematically ask patients about their alcohol use patterns, to determine if the person is at risk for AWS.

Screening instruments can be administered in the form of an interview, or as a self-administered questionnaire, to identify at-risk drinking or harmful alcohol use (Mueller, Schumacher, Wetzlmair, & Pallauf, 2016). Although there are a variety of choices for screening tools, the most widely used and recognized are the **CAGE** and **AUDIT** tools.

What is the CAGE Questionnaire?

Eastern Health has developed a policy for the purpose of managing alcohol withdrawal, which incorporates the CAGE tool for screening for AUD, and a number of medical and non-medical requirements for the treatment of AWS.

CAGE is an acronym that describes the 4 questions that are asked during its administration. It is a widely used and validated tool, that can be used to detect alcohol dependency (Eastern Health, 2007)

The **C** stands for **Cut Down**, and is asking the person if they are concerned that their drinking may be a problem. The **A** refers to **Annoyed**, and is asking the person if it is apparent to others that there is a problem. The **G** stands for **Guilty**, and outlines the negative consequences that are associated with alcohol misuse. Finally, the **E** stands for **Eye Opener**, and refers to the person's tolerance and dependence for alcohol (Mayfield, McLeod, & Hall, 1974).

CAGE Questionnaire for Detecting Alcoholism

Question	Yes	No
C: Have you ever felt you should **C**ut down on your drinking?	1	0
A: Have people **A**nnoyed you by criticizing your drinking?	1	0
G: Have you ever felt **G**uilty about your drinking?	1	0
E: Have you ever had a drink first thing in the morning (**E**ye opener)?	1	0

A total score of 0 or 1 suggests low risk of problem drinking
A total score of 2 or 3 indicates high suspicion for alcoholism
A total score of 4 is virtually diagnostic for alcoholism

Figure 8 CAGE questionnaire
Retrieved from: https://www.hepatitisc.uw.edu/go/evaluation-staging-monitoring/initial-evaluation-chronic/core-concept/all

If a person answers "**yes**" then a point is allocated. Scores of 2 or 3 indicate high suspicion for alcoholism or an AUD. A score of 4 is the highest possible outcome, and is indicative of alcoholism, which is also known as alcohol dependence, the most severe form of AUDs.

The CAGE tool is not designed to pick up less severe forms of AUDs, such as harmful drinking. Its key purpose is to detect alcohol dependency.

When you are completing the CAGE questionnaire, if you suspect that the patient may be minimizing the amount they drink, it is ok to ask more questions outside of those within CAGE. You may be able to better uncover the truth by asking questions about the quantity, frequency, and pattern of the person's drinking. This will help you to better determine the nature and extent of the problem.

What is the AUDIT Tool?

The AUDIT tool or questionnaire is another screening method, similar to the CAGE questionnaire, for identifying AUDs in the primary care setting. It has been shown to be a valid tool for the identification of at-risk drinking, and AUDs in all adult patients in general hospital settings. Due to its success, the AUDIT tool has been translated into numerous languages and adapted into different versions, such as the AUDIT-C (Mueller et al., 2016).

The AUDIT consists of 10 questions that have a number of responses that are selected by the patient as the one that best fits them. The scores range from 0 to 4 for all 10 questions, with 0 indicating "never" and 4 indicating "daily" or high alcohol consumption. The number next to the response represents the number of points to attribute to the answer.

A score of **8 or more** represents harmful or **hazardous drinking**, while a **score of 13 or more in women, and 15 or more in men**, is likely to indicate **alcohol dependence** (Saunders et al., 1993). Distinguishing between hazardous drinking and alcohol dependence can help the nurse to predict the severity of the alcohol withdrawal the person may experience, and ensure that the patient gets the proper treatment.

The Alcohol Use Disorders Identification Test: Interview Version

Read questions as written. Record answers carefully. Begin the AUDIT by saying "Now I am going to ask you some questions about your use of alcoholic beverages during this past year." Explain what is meant by "alcoholic beverages" by using local examples of beer, wine, vodka, etc. Code answers in terms of "standard drinks". Place the correct answer number in the box at the right.

1. How often do you have a drink containing alcohol?
   (0) Never [Skip to Qs 9-10]
   (1) Monthly or less
   (2) 2 to 4 times a month
   (3) 2 to 3 times a week
   (4) 4 or more times a week

2. How many drinks containing alcohol do you have on a typical day when you are drinking?
   (0) 1 or 2
   (1) 3 or 4
   (2) 5 or 6
   (3) 7, 8, or 9
   (4) 10 or more

3. How often do you have six or more drinks on one occasion?
   (0) Never
   (1) Less than monthly
   (2) Monthly
   (3) Weekly
   (4) Daily or almost daily
   Skip to Questions 9 and 10 if Total Score for Questions 2 and 3 = 0

4. How often during the last year have you found that you were not able to stop drinking once you had started?
   (0) Never
   (1) Less than monthly
   (2) Monthly
   (3) Weekly
   (4) Daily or almost daily

5. How often during the last year have you failed to do what was normally expected from you because of drinking?
   (0) Never
   (1) Less than monthly
   (2) Monthly
   (3) Weekly
   (4) Daily or almost daily

6. How often during the last year have you needed a first drink in the morning to get yourself going after a heavy drinking session?
   (0) Never
   (1) Less than monthly
   (2) Monthly
   (3) Weekly
   (4) Daily or almost daily

7. How often during the last year have you had a feeling of guilt or remorse after drinking?
   (0) Never
   (1) Less than monthly
   (2) Monthly
   (3) Weekly
   (4) Daily or almost daily

8. How often during the last year have you been unable to remember what happened the night before because you had been drinking?
   (0) Never
   (1) Less than monthly
   (2) Monthly
   (3) Weekly
   (4) Daily or almost daily

9. Have you or someone else been injured as a result of your drinking?
   (0) No
   (2) Yes, but not in the last year
   (4) Yes, during the last year

10. Has a relative or friend or a doctor or another health worker been concerned about your drinking or suggested you cut down?
    (0) No
    (2) Yes, but not in the last year
    (4) Yes, during the last year

Record total of specific items here

If total is greater than recommended cut-off, consult User's Manual.

Figure 9 AUDIT Questionnaire
Retrieved from: http://www.gencat.cat/salut/phepa/units/phepa/html/en/dir352/doc7571.html

When should the CAGE or AUDIT be used?

Effective early identification begins in the **preoperative period** with preparation and patient screening from knowledgeable and well-trained health care professionals (Bradley et al., 2007; Tran et al., 2009).

Eastern Health recommends that the CAGE questionnaire be administered to all patients being admitted to hospital "**at the point of entry"** into the health care system. This means that prior to admission for a surgical procedure, a patient should be asked these questions in a preoperative setting. Although this is procedure, a nurse should not assume that this was done prior to admission. It is important for surgical nurses to follow up to ensure the assessment for AUDs was completed, even if it must be done postoperatively, as this may prevent AWS.

It is also a priority for the surgical nurse to screen the patient for AUDs when admitted to the floor from the emergency room (ER). Although the ER nurse may be the nurse at the point of entry, the nurse may not have screened for AUDs if there were no reasons for them to believe the patient is abusing alcohol. A good opportunity for the completion of the CAGE questionnaire is during the taking of the nursing history when the patient arrives from the ER to the unit.

What else should be considered when screening for AUDs?

1. If the CAGE questionnaire score is suggestive of the patient having an AUD, or if the patient is showing signs or symptoms of AUDs, the **nurse must notify the physician.**

2. Once identified, the physician will initiate the alcohol withdrawal protocol (AWP), which includes a standardized set of bloodwork, medications, and orders that allow nurses to monitor and treat alcohol withdrawal symptoms.

3. Health care professionals frequently feel uncomfortable asking patients about their alcohol use. No matter how awkward, it is important that the nurse asks these questions in a non-judgmental manner.

4. Even after the diagnosis of AWS is made, many nurses report that the care of patients experiencing AWS is extremely difficult to manage (Berl et al., 2015). The best way to address this is by becoming familiar with the mechanisms of care for these patients, so the nurse can become more confident and aware of their role in patient care.

What is the best way to encourage open communication about alcohol use?

The best way to discuss alcohol use with patients is to encourage open communication by:

- Recognizing any biases that you may have regarding alcohol use.
- Being mindful in the wording of the questions you ask the patients. Certain phrases or words may make the person feel as if they are being judged, and this makes them less likely to open up.
- Explaining to the patients why you are asking these questions, and the importance of obtaining honest answers.
- Being transparent by telling the patient why you are asking these questions. Explain why AWS is dangerous, and how it can be prevented.
- Asking for facts, rather than making judgements. If patients feel you are judging them, they may be less likely to answer truthfully.
- Normalizing the procedure. Explain how everyone is asked these questions.
- Asking close ended questions – open ended questions may increase the patient's anxiety at this time.

Figure 10: Male and Female Nurse
Retrieved from: http://moziru.com/explore/Nurse%20clipart%20male%20and%20female/

(McBride, 2010)

For Example:
Instead of: "How often do you drink?"
Ask: "How many days do you drink in a week, and on average how much do you consume each day?"

If a person states: they "only drink causally"
Try asking: "How many drinks do you typically have on a single occasion?"

This will give you a more detailed answer, and will help you to accurately identify drinking patterns.

Section Three

Identifying Alcohol Withdrawal Syndrome

Contents

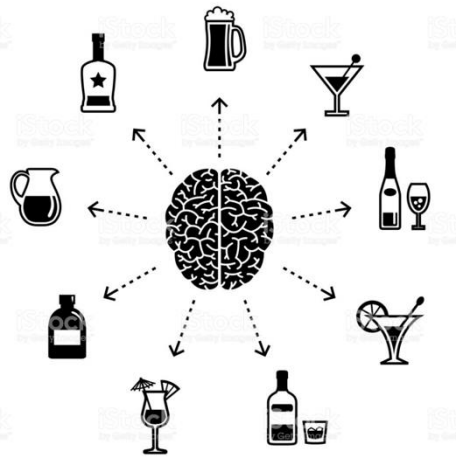
Section 3.1. Alcohol Withdrawal Syndrome

Nurses have the most frequent contact with surgical patients, and have a critical role when caring for this population. This role extends to caring for the person experiencing **alcohol withdrawal syndrome (AWS)**, as they are responsible for identifying AUDs, through preoperative screening, as well as managing AWS through early identification and medical treatments (Elliott et al., 2013).

What is Alcohol Withdrawal Syndrome?

AWS is a clinical diagnosis that is experienced by patients who have AUDs. It is the physical reaction the body has to the cessation or reduction of alcohol intake after prolonged use (American Psychiatric Association, 2013; Halter, 2014).

Although alcohol affects many organs in the body (i.e., stomach, intestines, liver, heart, pancreas, lungs, and kidneys), some of the most **detrimental effects come from the effect alcohol has on the brain**. Over prolonged periods of use, the brain becomes dependent on the continuous amount of alcohol in the system. With the sudden reduction or cessation of alcohol, the brain does not know how to respond due to the acute imbalance of GABA activity and the increase of glutamatergic action (Mirijello et al., 2015). This results in a variety of symptoms that are classified as AWS (Elliott et al., 2013).



The severity of AWS can vary, but it tends to be dose related, meaning that the more alcohol the person regularly consumes, the more severe the symptoms will be. AWS also tends to be more severe in people over the age of 65, due to the age-related changes occurring in the brain in conjunction with the effects of alcohol (Halter, 2014).

Who is at risk for AWS?

People who meet the diagnostic criteria for AUDs are at risk for AWS. This means that patients who score greater than 2 on the CAGE questionnaire may be at risk for

AWS, as this score suggests the possibility of AUDs. Patients admitted to hospital are at particular risk for AWS, due to the immediate cessation of alcohol.

As a rule of thumb, assume that a patient is at risk for AWS if the patient reports heavy drinking (i.e., consuming alcohol on a daily basis or meeting the **harmful drinking criteria:** drinking > 8 drinks per week for women; and drinking > 15 drinks per week for men).

If you are unsure if a person's drinking puts them at risk for AWS, it is always best to notify the physician of the amount of alcohol regularly consumed regardless.

There is no harm in initiating the AWP, as patients are only treated for AWS once they develop symptoms. Stating that a patient <u>MAY</u> be at risk can alert other health care professionals to monitor the patient more closely, preventing serious complications.

<u>Section 3.2. Signs and Symptoms of AWS</u>

Signs and symptoms of AWS can start within a few hours of the last alcohol intake; however, they tend to peak in the **24-48 hour period post alcohol intake**. After this this time frame, symptoms either fade and vanish, or progress to alcohol delirium.

Symptoms range from mild, moderate, to severe, and differ depending on the how much alcohol the person regularly consumes, and how many hours it has been since alcohol consumption (Kip et al., 2008).

Symptoms of Mild or Stage 1 AWS:

Symptoms associated with mild or Stage 1 AWS typically begin within 8 hours of the last drink and include:

- Mild tremor
- Anxiety
- Mild diaphoresis
- Mild tachycardia
- Sleep disturbances
- Upset stomach
- Mild headaches
- Easily startled
- Inappropriate comments or odd statements

(Gordon et al., 2006; Halter, 2014; Sutton & Jutel, 2016)

Symptoms of Moderate or Stage 2 AWS:

Symptoms associated with moderate or Stage 2 of AWS typically begin within 12 to 24 hours of the last drink and include**:**

- Confusion
- Fever
- Elevated blood pressure
- Jerky movements
- Hyper alertness
- Delusions
- Aggressive, argumentative behaviour
- More severe Stage 1 symptoms such as, increased tremor, diaphoresis, stomach upset, headache, and anxiety.

(Gordon et al., 2006; Halter, 2014; Sutton & Jutel, 2016)

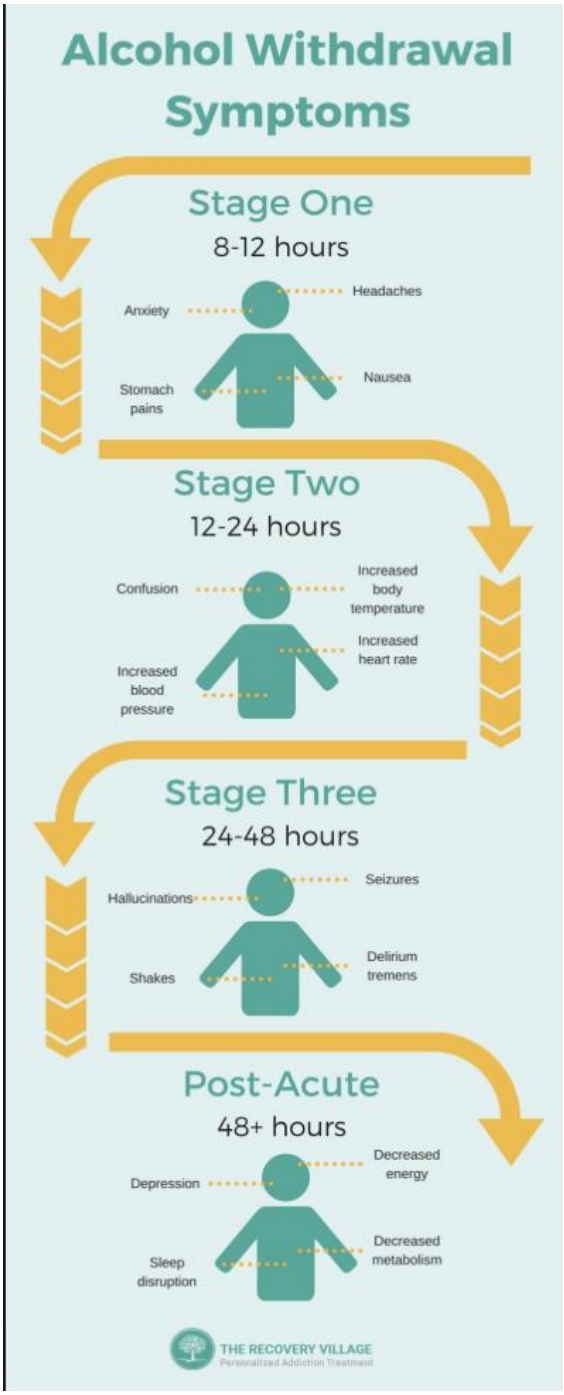


Figure 11 Alcohol withdrawal symptoms
Retrieved from: https://www.therecoveryvillage.com/alcohol-abuse/withdrawal-detox/withdrawal-timeline/

Symptoms of Severe or Stage 3 AWS:

Severe AWS is also referred to as **delirium tremens (DT)**, and can result in death if not treated in a timely manner. DT occurs in 10% of patients who develop AWS,

and refers an altered level of consciousness that is a medical emergency (Gordon et al., 2006; Sutton & Jutel, 2016). Symptoms associated with severe AWS typically begin within 48-72 hours of the last drink, however, can develop as late as 5 days after the onset of AWS.

Symptoms of severe AWS include:

- Severe disturbances in sensorium, such as disorientation and clouding of consciousness
- Perceptual disturbances, such as visual or tactile hallucinations
- Fluctuating level of consciousness
- Seizures
- Insomnia
- Increased aggression and agitation
- Blackouts
- Autonomic hyperactivity, which can lead to a dangerous elevation of heart rate, blood pressure, and body temperature.
- Delusions
- Urinary incontinence

(Gordon et al., 2006; Halter, 2014; Sutton & Jutel, 2016)

Figure 12 AWS related seizures Retrieved from:http://www.drugrehab.org/alcohol-rehab/alcohol-effects/http://www.drugrehab.org/alcohol-rehab/alcohol-effects/

REMEMBER

Health care professionals must remain observant for signs and symptoms of alcohol withdrawal, even in patients who are not known to have AUDs, as patients often downgrade their alcohol use.

In addition, nurse must be mindful that other medical conditions have similar symptoms as AWS. To distinguish between them, the nurse must ask the patient or their family again about alcohol use at home.

If you suspect a person is experiencing AWS, it is **always** important to bring it to the attention of the doctor.

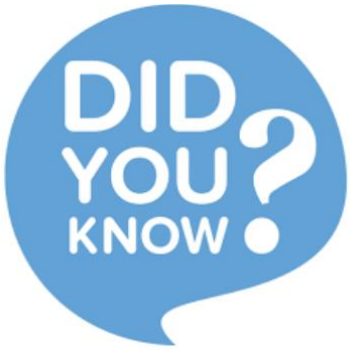
Section 3.3. Complications of AWS

Due to the extensive effects AWS has on the body, patients admitted to hospital are subjected to a number of complications as a result of alcohol abuse. The risk for a complicated hospital stay increase even further in the surgical patient as a result of AWS and the additional stress that surgical procedures and the recovery places on the body (Genther & Gourin, 2012; Melson et al., 2014).

Common complications for surgical patients who experience AWS include:

- Cardiopulmonary complications, such as cardiac insufficiency and arrhythmias
- Increased risk of bleeding
- Reduced immune capacity
- Increased risk of postoperative wound infections
- Increased endocrine stress
- Increased length of hospitalization
- Admission to the Intensive Care Unit (ICU)

(Oppedal, Moller, Pedersen, & Tonnesen, 2012)



The rates of postoperative complications have been reported to **increase by 50%** with an alcohol intake of **3 - 4 drinks per day**. With an alcohol consumption of **greater than 5 drinks per day**, the risk of postoperative complications has been reported to **increase by 300% to 500%** when compared to an average of 0 - 2 drinks per day (Oppedal et al., 2012).

AWS also can cause a number of negative effects to the health care system and its members, including:

- Increased violence towards nurses, resulting in high incidents of injury, sick time, and nursing burnout due to the increased aggression, agitation, and confusion associated with AWS.
- Damage to hospital and hospital equipment, also associated with the increased aggression and confusion of patients with AWS.
- Decreased number of available acute care beds due to prolonged admissions for patients who are or who have experienced AWS.
- High financial burden from all of the above.

(Carpenito-Moyet, 2009; PHAC, 2015)

Section 3.4. Preventing AWS

The identification of AUDs and the prevention of AWS go hand-in-hand: Research has suggested that early and accurate identification of AUDs by health care professionals is the best means of preventing severe AWS symptoms in surgical patients, which in turn prevents the complications associated with AWS (Cunningham & Puskar, 2007; Gili-Miner et al., 2014; Kip et al., 2008).

In order to accomplish this, nurses must work together in the pre- and post-operative phases to screen for AUDs, as well as to provide early treatment to prevent severe AWS. When working in the postoperative setting, it is the responsibility of the nurse to ensure that the CAGE questionnaire is complete, and to **initiate the AWP** if the patient has signs of AUDs.

Additionally, patients need education on AUDs and AWS prior to entering the hospital setting. This could encourage open communication regarding AUDs and AWS. Nurses should ensure patients and their families receive the educational handout "**Alcohol Use – Information for the Surgical Patient,**" as noted in Appendix A of this tool kit. Patients should also be encouraged to cease alcohol consumption 24 hours prior to admission to hospital for surgical procedures, as this may also reduce postoperative complications (Oppedal et al., 2012). A poster can also be placed in the surgical settings to encourage communication between the patient and nurse about AWS and their risk (Appendix B).

Section 3.5. Ways to Identify AWS

The easiest way to identify AWS in the surgical patient is through monitoring patients for the signs and symptoms associated with AWS. AWS should always be considered among the possible differential diagnoses for patients with symptoms similar to those outlined in **Section 3.2.** Additionally, any patient with a change in or reduced level of consciousness should also be monitored for the appearance of other AWS symptoms, and considered for a diagnosis of AWS (Mirijello, et al., 2015).

Identifying AWS requires the use of **subjective** and **objective data** on behalf of the nurse through the nursing assessment: subjective to identify if the person is

experiencing visual or audible hallucinations, a headache, anxiety, or upset stomach; and objective data to assess the patient's vital signs for elevations, their hand for tremors, or their orientation.

As per the DSM-5, a diagnosis of AWS requires **at least two of the following symptoms:** autonomic hyperactivity (sweating or tachycardia); increased hand tremor; insomnia; nausea or vomiting; transient visual, tactile or auditory hallucinations or delusions; psychomotor agitation; anxiety; and tonic–clonic seizures (Mirijello et al., 2015). Only then can it be determined that a patient is experiencing AWS.

Section Four

Managing Alcohol Withdrawal Syndrome

Contents

Section 4.1. Eastern Health's Alcohol Withdrawal Protocol – An Overview.

ALCOHOL- SCREENING AND WITHDRAWAL PROTOCOL- ADULT ACUTE CARE	Patient/Resident/Client care PRC-003

Eastern Health developed their own **alcohol withdrawal protocol (AWP)** to help health care professionals in all areas of acute care manage AWS (Appendix C). The purpose of the AWP is to provide guidance to physicians, RNs, and LPNs to achieve the optimal management of patients experiencing AWS or for patients who are at risk of developing AWS.

The policy consists of a variety of components, including screening tools, patient's orders, and medication orders that help in the identification and management of AWS. These specific resources include:

1. The **CAGE questionnaire** for screening of AUDs.
2. A standardized patient order and medication order sheet
3. The **C**linical **I**nstitute **W**ithdrawal **A**ssessment of **A**lcohol **S**cale **r**evised (**CIWA-Ar**) for the medical management of AWS.

While the identification of AUDs is key in the prevention of detrimental symptoms, the management of AWS is equally important for postoperative patients. Research has exhibited that to efficiently manage AWS, AWPs are needed to merge pharmacological symptom control with standardized treatment steps for optimal care (Duby, Berry, Ghayyem, Wilson, & Cocancour, 2014).

What are standardized orders within the AWP?

A set of standardized patient care and medication orders are included within Eastern Health's AWP, that gives the nurse direction, as well as autonomy, when caring for patients with AWS. Standardized treatment methods offer nurses that lack time and

specialized training, a reliable and consistent way to assess the severity of AWS, while administering appropriate treatments (Swift, Peers, Jones, & Bronson, 2010).

These orders instruct nursing staff on:

- What medications to administer
    - Regular medications such as: Thiamine, Multivitamins, and Folic Acid
    - PRN medications: such as Lorazepam as per the CIWA-Ar
- When to administer medications
- Appropriate patient observation intervals
- When to monitor vital signs
- When to notify the physician
- When to discontinue the protocol
- Who to consult
    - Psychiatry if there is a suspected psychiatric illness
    - Social work
    - ICU if condition worsens
- Blood work orders
- When to complete other diagnostic tests, such as an EKG, chest X-ray, or urinalysis

The primary care physician for the patient is required to select the orders in which they want the nursing staff to complete via checking off the boxes, for both patient care and medication orders. Nurses are then responsible for following the orders as directed by the physician's selected orders. A physician's signature is **needed** to initiate this order set.

What is the CIWA-Ar?

The CIWA-Ar is the most common method of treating alcohol withdrawal. It is utilized by Eastern Health as a means of treating AWS, as it gives nurses the autonomy to medicate patients with benzodiazepines based on an objective/subjective scale that ranks the severity of their symptoms (Ng, Dahri, Chow, & Legal, 2011).

The CIWA-Ar requires nurses to monitor for:

- Nausea and vomiting
- Tremor
- Paroxysmal sweats
- Anxiety

- Agitation
- Tactile disturbances
- Visual disturbances
- Auditory disturbances
- Headache/fullness in head
- Orientation/ Clouding of Sensorium

When assessing the patient, the nurse is to look for each of the 10 items and rate them from a range of 0 – 7 based on their severity, with 0 representing normal activity or a non-present symptom and a range of 4 -7 representing the most severe categorization of the symptom.

CLINICAL INSTITUTE WITHDRAWAL ASSESSMENT OF ALCOHOL SCALE, REVISED (CIWA-Ar)

NAUSEA & VOMITING
Ask " Do you feel sick to your stomach? Have you vomitted?" Observation.
0 No nausea & no vomiting
1 Mild nausea with no vomiting
4 Intermittent nausea with dry heaves
7 Constant nausea, frequent dry heaves and vomiting

TREMOR
Arms extended and fingers spread apart. Observation
0 No tremor
1 Not visible, but can be felt fingertip to fingertip
4 Moderate, with patient's arms extended
7 Severe, even with arms not extended

PAROXYSMAL SWEATS
Observation
0 No sweat visible
1 Barely perceptible sweating, palms moist
4 Beads of sweat obvious on forehead
7 Drenching sweats

ANXIETY Ask " Do you feel nervous?" Observation
0 No anxiety, at ease
1 Mild anxious
4 Moderately anxious, or guarded, so anxiety is inferred
7 Equivalent to acute panic states as seen in severe delirium or acute schizophrenic reactions

AGITATION Observation
0 Normal activity
1 Somewhat more than normal activity
3 Moderately fidgety and restless
7 Paces back and forth during most of the interview, or constantly thrashes about

TACTILE DISTURBANCES Ask " Have you any itching, pins and needles, burning, numbness or do you feel bugs crawling on or under your skin?"Observation
0 None
1 Very mild itching, pins & needles, burning or numbness
3 Moderate itching, pins & needles, burning or numbness
5 Severe hallucinations
7 Continuous hallucinations

AUDITORY DISBURBANCES 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
3 Moderate harshness or ability to frighten
5 Severe hallucinations
7 Continuous hallucinations

VISUAL DISTURBANCES Ask " Does the light appear to be to bright? Is its color different? Does it hurt your eyes? Are you seeing anything that is disturbing to you? Are you seeing things that you know are not there?" Observation
0 Not present
1 Very mild sensitivity
3 Moderate sensitivity
5 Severe hallucinations
7 Continuous hallucinations

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 No present
1 Very mild
3 Moderate
5 Severe
7 Extremely severe

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

Figure 13 CIWA-Ar scale
Retrieved from: Eastern Health (2007)

Although the CIWA-Ar has been shown to be highly effective, it is important to remember that the CIWA-Ar is subjective in nature. Only 3 of the 10 components (tremor, paroxysmal sweats, agitation) can be rated by observation alone. The remaining components require at least some discussion with the patient (Bayard, Mcintyre, Hill, & Woodside, 2004).

If a patient scores **10 or greater** when assessed by the nurse, the patient is to be medicated with a varying dose of **Lorazepam** based on their CIWA-Ar score. Due

to the subjective interpretation of the scale, this can make nurses feel unsure about dosing a patient. **Remember:** When in doubt, you may always ask a team member for their opinion and assistance.

How often should the patient be assessed for AWS using the CIWA-Ar scale?

Once a patient is diagnosed with AWS and the AWP is implemented, the CIWA-Ar scale, blood pressure, temperature, pulse, and respirations must be assessed **immediately.**

These assessments must then be completed:

- Hourly until the CIWA-Ar score is 10 or less for **3 hours consecutively**
- **THEN** every 4 hours for 12 hours
- **THEN** every 12 hours for 7 days

After 7 days, the AWP can be discontinued if the patient scores 10 or less consecutively for this period of time.

NOTE

Every time the patient scores greater than 10, then hourly CIWA-Ar scoring and assessment of the vital signs resumes until the patient once again scores 10 or less for 3 hours consecutively, decreasing then to Q4H for 12 hours, and finally BID for 7 days.

What are the different roles of health care professionals within the AWP?

Although managing AWS requires the attention of the entire multidisciplinary team within the surgical setting, the RN, physician, and LPN have the most prominent roles when using the AWP.

Role of the RN

The role of the RN includes:

- Administer the CAGE questionnaire
- Notify the physician if the patient is suspected to have an AUD

- Notify the physician if the patient is suspected to be experiencing AWS
- Perform the assessment and documentation of AWS using the Alcohol Withdrawal Assessment Record (Appendix C)
- Perform patient surveillance based on the assessed level of harm (to self or others), as well as the patient's medical conditions, or as ordered by the physician
- Administer and document medications as per the standardized order set of the CIWA-Ar

REMEMBER
If you change health care authorities or province of employment, you must follow the AWP put in place by that facility.

- Notify the physician when the protocol is not effective for controlling the signs and symptoms of AWS
- Reassess the CIWA-Ar dosing anytime there is a change in the patient's status that is suggestive of AWS

Role of the Physician

The role of the physician includes:

- To initiate the AWP when a patient is suspected to have an AUD.
- To initiate the AWP when a patient is suspected to be experiencing AWS.
- To adjust the patient orders and medication doses if it is noticed that they are no longer controlling the signs and symptoms of AWS.

Role of the LPN

The role of the LPN includes:

- Administer the CAGE questionnaire
- Notify the physician if the patient is suspected to have an AUD
- Notify the physician if the patient is suspected to be experiencing AWS

To ensure that the assessment findings are as accurate as possible, it is recommended that the same RN complete the patient assessment and scoring as per the CIWA-Ar when possible.

Section 4.2. Medication Treatments and Interventions for AWS

Although the management of AWS involves a combination of treatments, the most critical means of patient recovery is the use of medications to combat the detrimental effects of AWS on the surgical patient. A variety of medications are used in addition to the CIWA-Ar to treat underlying deficiencies, and help the patient as their body adjusts to the lack of alcohol. These medications are included within the standardized order set of the AWP, however, their administration can differ depending on the prescribing physician's preference.

The most frequently used medications for the treatment of AWS include:

1. **Benzodiazepines,** also referred to as **benzos**. These are the most important medication type to be administered during AWS.

   Benzos are a group of psychoactive drugs that work to **slow down the central nervous system by activating GABA receptors**. This makes them ideal for the treatment of alcohol withdrawal, as they influence the brain in a similar way to that of alcohol. Benzos are effective at reducing the symptoms of AWS, as they work to control psychomotor agitation, and prevent the progression from mild to severe alcohol withdrawal symptoms (Hoffman & Weinhouse, 2017). They have been found to be effective in reducing the symptoms of AWS, as well as preventing agitation, AWS seizures, and DT.

   For patients experiencing AWS, benzos can be administered regularly through **benzodiazepine loading**, or through **symptoms triggered treatments,** such as the CIWA-Ar. Both types of medication administration styles have positive results when used to combat AWS, as they have both been found to decrease the length of time AWS is experienced, the length of time in the ICU, the length of overall hospital stay, and the postoperative complications associated with AWS (Maldonado, Nguyen, Schader, & Brooks, 2012).The symptoms triggered treatment, however, is preferred due to the reduced amount of benzos required to be administered to the patient for the same outcomes (Ng et al., 2011). Some physicians even go as far as to order a combination of the two treatments, with the patient receiving regular small doses of the benzos, as well as the symptom dose treatments as per the CIWA-Ar.

All benzodiazepines are effective in the treatment of AWS; however, some are more commonly used than others for a variety of reasons. To treat AWS the benzo should have a rapid onset, long duration of action, wide margin of safety, non-liver metabolism, and the absence of abuse potential (Sachdeva, Choudhary, & Chandra, 2015).

The most commonly used benzos for treatment of alcohol withdrawal within Eastern Health, as dictated by their alcohol withdrawal protocol, are:

Lorazepam (Ativan)

- Drug of choice due to its characteristics of:
  - Non-liver dependence
  - Rapid onset
  - Intermediate half-life
  - Easy administration – can be given intravenously (IV), by mouth (PO), or sublingually (SL)
  - Ativan is used with the CIWA-Ar as outlined by Eastern Health

Other common benzos that can be used outside of the alcohol withdrawal protocol, if ordered by the physician, include:

Diazepam (Valium)

- Depresses all levels of the CNS
- Long acting
- Rapid onset
- Has to be cautiously increased due to likelihood of adverse side effects, such as idiosyncratic apnea
- Long half-life, which is useful in providing a smooth course of treatment without the risk of rebound symptoms (e.g., seizures) that occur late during withdrawal
- Active metabolites, a disadvantage that is the reason for its decreased use

NOTE

Ativan is considered to be more effective than Valium at preventing seizures, and requires less of a dose for the same effect.

Clonazepam

- Long biological half-life, which is important in the prevention of withdrawal seizures.

- Eliminated through kidneys
- Mainly renal elimination
- No pharmacologically active metabolites

(Bonnet, Lensing, Specka, & Scherbaum, 2010; McKeown, 2017; Sachdeva et al., 2015)

As per Eastern Health's policy, Ativan is used in conjunction with the CIWA-AR. Once the nurse scores the patient, as mentioned in **Section 4.1,** they are then required to administer medication in accordance with the severity of the symptoms. The nurse is given the choice between the route of medication administration, and the conversion from PO /SL to IV is given.

If CIWA-Ar 10 or greater, administer the specified medication every hour at dosage corresponding to the observed CIWA-Ar score. Continue therapy until the CIWA-Ar score is less than 10 or the patient is sedated.

CIWA-Ar Score	Lorazepam Dosage	
0-9	0 mg oral/sublingual	0 mg IV
10-12	1 mg oral/sublingual	0.5 mg IV
13-14	2 mg oral/sublingual	1 mg IV
15-17	3 mg oral/sublingual	1.5 mg IV
Over 17	4 mg oral/sublingual	2 mg IV

* Conversion Chart: Every 0.5 mgs of IV Lorazepam is equivalent to 1mg of oral or sublingual Lorazepam

Figure 14 CIWA-Ar Score and Lorazepam dosages
Retrieved from: Eastern Health, 2007

The higher the person scores in reference to their symptoms, the more Ativan they receive.

NOTE

If a patient has a seizure, regardless of their CIWA-Ar score, they must receive a benzodiazepine

2. **Thiamine,** or **vitamin B1,** is a fundamental nutritional requirement of the body to maintain functioning. It is an essential component of the assembly and functioning of a variety of enzymes needed for the metabolism of sugar molecules in carbohydrate catabolism (Martin & Hiller-Sturmhofel, 2004).

The human body is not able to create thiamine on its own; it must be ingested with the diet in thiamine rich foods, such as **meats, poultry, whole grains cereals, nuts, and dried beans.** Many foods also are **fortified with thiamine**, such as breads and cereals, to ensure people get adequate amounts.

Patients with AUDs tend to have low levels of thiamine due to the rate at which alcohol consumption depletes thiamine, as well as their lack of a proper diet. Therefore, these patients are at risk for **Wernicke–Korsakoff syndrome (WKS)**. WKS consists of two separate diseases, the first of which is **Wernicke's encephalopathy,** a short-lived, but severe condition, while the other is **Korsakoff's psychosis**, a long-lasting debilitation condition affecting the brain (Martin & Hiller-Sturmhofel, 2004).

Wernicke's encephalopathy is a neurological disorder that results from cell damage of the mammillary body, thalamus, and the hippocampus. Symptoms include: **mental confusion, paralysis of the ocular nerves, and impaired coordinated movements, especially in the lower extremities** (Martin & Hiller-Sturmhofel, 2004; Sachdeva et al., 2015). Korsakoff's psychosis is a chronic neuropsychiatric disorder that results in behavioral abnormalities and memory impairment.

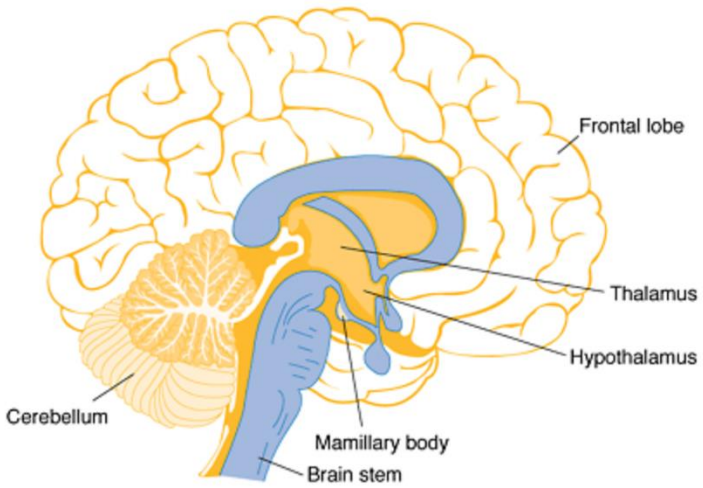


Figure 15 Regions of the brain effected by thiamine deficiency
Retrieved from: https://pubs.niaaa.nih.gov/publications/arh27-2/134-142.htm

Therefore, thiamine should be administered to any patient with an AUD or who are experiencing AWS. Initially for the first dose, thiamine should be administered by IV as gastrointestinal absorption may be compromised due to chronic alcohol use (McKeown, 2017; Sachdeva et al., 2015). This is a process

that is promoted within Eastern Health, with some physicians ordering IV thiamine for up to 5 days post initiation of the AWP.

The order within Eastern Health's policy states thiamine administration should include:

Thiamine 100mg IV or IM for the first dose <u>THEN</u> Thiamine 100mg PO/IM/IV daily, depending on the patient's ability to consume PO medications.

Patients should also be encouraged to take a thiamine supplement upon discharge. Most patients will return to their drinking habits upon returning home, and this may once again lead to a thiamine deficiency (Riddle, Bush, Tittle, & Dilkhush, 2010).

3. **Folic Acid** is a water-soluble vitamin that assists in the formation of red blood cells, and protein metabolism (Riddle et al., 2010). Folic acid is acquired from fortified foods, and is sometimes missing in the diet of people with AUDs.

   The order within Eastern Health's policy states:

   Folic acid 1 mg PO daily

   The patient should receive folic acid for their entire admission, and then continue to take folic acid on discharge to treat the deficiency they have from a poor diet.

4. **Multivitamins** typically consist of a combination of vitamins C, B1, B2, B3, B5, B6, B9, B12, A, E, D, K, biotin, potassium, iodine, zinc, calcium, magnesium, manganese, and iron, and should be given to correct any additional deficiencies. The use of a multivitamin can help to maintain vision, the nervous system, the immune system, memory loss, and fatigue (Sachdeva et al., 2015).

   The order within Eastern Health's policy states:

   Multivitamin one tablet PO daily
   OR
   Multivitamin 10ml in 500ml of normal saline IV over 2 hours daily

The route of administration is subject to change depending on the patient's ability to orally consume the vitamin.

Additional medications that may be used outside of the medications listed within the alcohol withdrawal protocol include:

Antipsychotics: can be used if the patient is in danger of harming themselves or others.

The most common antipsychotic administered in this case is **Haldol.**
Haldol is used to treat agitation and hallucinations in a patient experiencing AWS; however, it should only be used when **absolutely necessary since it can lower the seizure threshold (**McKeown, 2017). It is not effective at treating the other symptoms of AWS, and it is not included in the standardized order set, however, it still may be used.

Section 4.3. Other Common Treatments for AWS.

Other than administering the required medication for the treatment of AWS, there are also a number of other supportive and protective measures nurses should incorporate into their care for these patients. Some of these interventions nurses can implement on their own, while others may require a physician's order or approval of management.

Other common and helpful treatments or interventions for patients experiencing AWS include:

1. When possible: patients should be placed in a **private room,** away from other patients.

   This is beneficial for **two reasons:**
   First, too much stimulation for a patient experiencing AWS can be detrimental; therefore, a quiet environment is best while they are actively experiencing **moderate to severe** symptoms (Hoffman & Weinhouse, 2017).

Second, patients experiencing moderate to severe withdrawal symptoms, such as disorientation, hallucinations, and agitation, cannot only be disruptive for other patients, but they can also pose a significant safety threat to themselves as well as other patients through acts of violence (Rainier, 2014).

2. Encourage family or friends to stay with the patient during AWS to help reduce anxieties and increase orientation. Familiar faces when a person is delusional or hallucinating tends to help the patient better focus on reality (Halter, 2014).

   If you think it will help the patient, do not be afraid to call the patient's family at home to ask them to come in.

3. Volume deficits, electrolytes, and nutritional imbalances may need to be corrected through the administration of IV fluids, PO/IV electrolytes, and nutritional supplements.

   Patients with AUDs are often malnourished and lacking essential vitamins, minerals, and electrolytes. When they go through AWS they experience additional excessive fluid loss through hyperthermia, diaphoresis, and vomiting, further increasing these deficits (Hoffman & Weinhouse, 2017).

4. Physical restraints may be temporarily necessary for patients experiencing DT-associated hallucinations, disorientations, aggression, and agitation (Hoffman & Weinhouse, 2017; Rainier, 2014). Once a person becomes agitated or aggressive towards others, these restraints are essential to **protect the patient and the nurse** from harm.

REMEMBER
Restraints should be used as the last possible option; the best restraint is always the least restraint. Once a patient's agitation decreases, restraints should always be removed

   Activities that may result in the use of physical restraints include:

   - hitting, kicking, or pushing
   - pulling on an I.V. line, tube, or other medical equipment or device needed to treat the patient
   - attempting to get out of a bed, chair, or hospital room before discharge, in patients who are confused or otherwise unable to follow safety directions.

(Springer, 2015)

Common restraints used in this situation include:

- **Extremity restraints**
  - Restraints designed to immobilize one or all extremities. They can be placed on the **wrists or ankles** of the patient.

Figure 16 Wrist restrains
Retrieved from: https://www.posey.com/products/patient-safety-and-protection/limb-holders/2532-2532-posey-quick-release-limb-holders

Figure 17 Ankle restraints
Retrieved from: http://www.segufix.com/detail.php?recordID=22

- The **belt or body restraint**
  - Also, recognized for its brand name as the **Segufix,** it is designed to ensure that the patient stays in the bed, and cannot get up unsupervised.

Figure 18 Segufix
Retrieved from:https://www.thestar.com/news/canada/2013/05/01/ashley_smith_inquiry_teen_put_in_restraining_bed_3_times_during_8day_hospital_stay.html

These restraints can be used **individually or together** depending on what they are required for, and how aggressive or agitated the patient is (Perry & Potter, 2010).

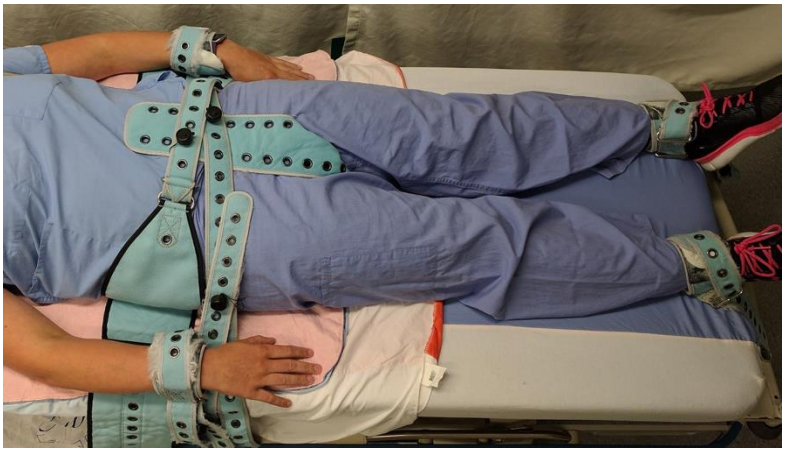


Figure 19 Use of wrist and body restraints together
Retrieved from: https://en.wikipedia.org/wiki/Medical_restraint#/media/File:PinelRestaint.jpg

When initiating physical restraints, it is always important to follow the policy of your facility. The majority of sites require a physician's order to initiate them, so be mindful of what is required in your unit.

5. In situations where the patient may be at risk to themselves or others, the patient may require higher levels of surveillance to maintain their safety. The minimum routine level of surveillance requires all patients to be observed at least once an hour (Eastern Health, 2010; Appendix D).

   Patients experiencing AWS may need to be on **close or constant surveillance** due to their increased risk of harm.

Close observations or surveillance requires the patient to be observed at least every 15 – 30 minutes, as per the nurse's discretion.

Constant observation or surveillance requires a staff member to be assigned to the patient for one-to-one observation. The patient must be in direct view of the staff at all times.

REMEMBER
Approval from a manager or designate is required prior to initiating constant care.

Important things to consider:

- The RN is **required** to notify the physician of a change in a patient's condition that required the increased level of surveillance and document this information in the client's health record.
- The RN or LPN can initiate and discontinue close surveillance at any time or can introduce constant surveillance with the approval of management or designate.
- The need for close/ constant surveillance is re-assessed every 12 hours.
- The assigned nurse must document the initial assessment and level of surveillance utilized, re-assessment every 12 hours, the completion of appropriate forms (e.g., record of surveillance, observed behavior checklist), and change to the level of surveillance.

Eastern Health

RECORD OF SURVEILLANCE

Name:

MCP #

Chart #

Date: _____

Frequency: ☐ Q 15 mins ☐ Q 30 mins

Time	Initial	Time	Initial	Time	Initial	Time	Initial	Time	Initial	Time	Initial
08		10		12		14		16		18	
08		10		12		14		16		18	
08		10		12		14		16		18	
08		10		12		14		16		18	
09		11		13		15		17		19	
09		11		13		15		17		19	
09		11		13		15		17		19	
09		11		13		15		17		19	

Time	Initial	Time	Initial	Time	Initial	Time	Initial	Time	Initial	Time	Initial
20		22		24		02		04		06	
20		22		24		02		04		06	
20		22		24		02		04		06	
20		22		24		02		04		06	
21		23		01		03		05		07	
21		23		01		03		05		07	
21		23		01		03		05		07	
21		23		01		03		05		07	

Restraints ***must be*** released/assessed Q2H

Restraint Released/Assessed		
Time	Initial	Comments

Figure 20 Close observation record
Retrieved from: Eastern Health 2010

Eastern Health

Observed Behaviour Checklist (Night Shift)
2000 - 0730 hours

Legend: Y - Yes N - No N/A - Not Applicable

	20	20	21	21	22	22	23	23	24	00	01	01	02	02	
Behaviour															
Correctly identifies people															
Aware of current surroundings															
Follows simple commands															
Uses objects appropriately															
Cooperative															
Refusing care															
Reaching/grabbing at air															
Seeing things not present															
Restless															
Attempting to get out of bed															
Pulling at lines and tubes															
Hitting/grabbing/kicking															
Inappropriate dress/disrobing															
Tearing/destroying property															
Communication															
Quiet															
Mumbling															
Argumentative															
Shouting															
Verbally abusive															
Ambulation															
Ambulating without problems															
Unsteady walking															
Pacing															
Wanders															
Sleeping															
Lying down															
Sitting															
Other															
Initials															

Signature/Status	Initials	Signature/Status	Initials	Signature/Status

Figure 21 Observational Behavior Checklist for Constant Observation
Retrieved from: Eastern Health 2010

6. The nurse may be ordered by the physician to **administer alcohol** to the patient prior to or after their surgical procedure. Some hospitals and some surgeons use this as a method to reduce the risk of developing AWS, and will order the person's drink of choice for them to have a certain amount at a set interval (Rosenbaum & McCarty, 2002).

These measures in combination with the medication treatments are the best possible way to ensure the safety and recovery of patients experiencing AWS.

Section Five

Resources for Decreasing Alcohol Use at Home

Contents

Section 5.1 Resources for Patients

The treatment of AWS should always be followed with treatment for AUDs, as treatment for AWS does not address the underlying addiction (Bayard et al., 2004). Patients are likely to return to their old drinking habits unless they are assisted in getting the help they need. Once the patient has recovered from AWS and their surgical procedure, the nurse should ask the patient if they are interested in sobriety and provide them with a list of local and wider spread resources.

Some resources to recommend to patients include:

1. The Canadian Centre on Substance Use and Addiction's Low- Risk Drinking Guidelines (See Appendix E)

   Website link: http://www.ccsa.ca/Resource%20Library/2012-Canada-Low-Risk-Alcohol-Drinking-Guidelines-Brochure-en.pdf

   These tips may help patients with mild AUDs to reduce their drinking to healthier levels.

2. Newfoundland and Labrador's Addiction Services

   Website link: http://www.health.gov.nl.ca/health/addictions/services.html

   This resource provides a list of series for people affected by alcohol, as well as drugs and gambling. It includes resources in all four health authorities; Eastern Health, Central Health, Western Health, and Labrador Grenfell Health.

   Resources for adults with alcohol abuse from this page include:

   - **Outpatient counselling:** This includes 26 offices across the province. Counselling sessions may be one-on-one, group sessions, or sessions for the patient and their family.

- Adult Residential Treatment Services: **This takes place at the Humberwood Treatment Centre in Corner Brook, where three-week inpatient treatment programs are offered for individuals with substance abuse issues. Individuals must be referred by a practitioner in the community who will complete an assessment including exploring the person's addiction and treatments goals. Treatments include individual and group counselling, relaxation and leisure therapy, and education sessions. On completion, patients are able to enroll in an extensive follow-up program.**
- Detoxification Services: **This takes place at the Recovery Center operated by Eastern Health. This service is for patients over the age of 16 who are experiencing intoxication or withdrawal symptoms. Clients of the Recovery Center can receive guidance through inpatient and outpatient addiction treatment services.**
- Crisis Support: **This includes the number for the Mental Health Crisis Line, which is available from anyone experiencing substance use or gambling problems as well as mental health issues.**

  Mental Health Crisis Line: 1-888-737-4668

3. **IRecover**

   Website link: https://serenityontherock.com

   This centre in Bonne Bay provides private residential addiction treatments for patients who are struggling with alcohol, drug, or gambling issues.

4. **Canada Drug Rehab Addiction Services Directory**

   Website link: http://www.canadadrugrehab.ca/newfoundland-labrador/

   This service can be used by patients to find services in their area that best meet their recovery needs.

5. **Canadian Center for Addictions and Mental Health**

Website link:
http://www.camh.ca/en/hospital/health_information/a_z_mental_health_and_addiction_information/alcohol/Pages/alcohol.aspx

This resource not only offers a variety of programs and services to help patients with AUDs, but it also provides information on AUDs that are written in a way that the majority of people will understand.

6. Alcoholics Anonymous (AA)

Website link: http://www.drugrehab.ca/newfoundland-aa-meetings.html
AND https://www.aastjohns.com

The first link provides a list of AA meetings across the province, while the second is direct access to the St. John's NL chapter of the program.

AA is a program that is specifically designed to help people with AUDs refrain from consuming alcohol.

The St. John's chapter of AA also has a helpline that people can call when they are struggling with alcohol use:

Helpline: (709) 579-5215

Section 5.2 Resources for Families

Along with the resources specifically designed for the patient with AUDs, there are also resources that are explicitly for families who have a loved one with alcohol use issues. Families need to be supported as much as the patient, as they are often subjected to the negative consequences of a loved one's drinking.

Some resources to recommend to patients include:

A. **All the resources recommended for patients in Section 5.1.**

This can help the family to know what is out there in terms of help for their loved one.

B. Al- Anon NL

Website link: http://www.al-anonandalateen.nl.ca

Al- Anon is a group for family and friends of alcoholics who share their experiences and support one another, in hopes of solving their common problems. The website explains how the group works and provides information on future meetings for people to attend.

Section Six

Case Studies

Case Study 1

A 67-year-old male patient is admitted to the general/ thoracic surgery floor postoperatively after receiving a right hemicolectomy for bowel cancer. The surgery went well, and the patient's vital signs have been stable. The patient's medical history includes hypertension, heart burn, and 3 fractured bones over a 5-year period.

Approximately one day after the surgery, the nurse notices that the patient's behaviour starts to change. The patient is anxious, diaphoretic, and has a slight tremor to his hands. Additionally, the person is asking for Gravol or Zofran regularly, and is making some odd remarks to the nurse that suggests his orientation to person, place, and time may be fluctuating. The patient's family states that this is very uncharacteristic of him. The nurse notes that the patient has an epidural, but has not received any additional medication for pain.

The nurse checks the chart and sees that the patient scored a 2 on the CAGE questionnaire, however, the nurse in the preoperative department was not convinced that the patient had an AUD and the AWP was not initiated.

Question # 1 - The surgical nurse assesses the patient and should:

A. Ask the patient and his family additional questions regarding his alcohol use, such has how much and how often the patient consumes alcohol.
B. Dismiss the diagnosis of AUD because a score of 2 does not suggest AUD.
C. Accuse the patient of lying about drinking habits.
D. Notify the physician without any further action. The physician will direct the nurse on what to do next.

The patient's family asks to speak with the nurse privately and states that the patient often consumes large amounts of alcohol over long periods of time, and recently the patient has given up a lot of activities he used to enjoy, such as bowling and his music group, due to his alcohol consumption. The physician is not convinced that the person is experiencing AWS and thinks the symptoms may be related to the patient's epidural.

Question #2 - The nurse should:

A. Agree with the physician because the physician knows best.
B. Inform the physician about the discussion with the patient's family, as they have indicated that he has two positive signs of an AUD, which in addition to the CAGE response confirms the diagnosis.

C. Ignore the conversation with the family because the patient denied having issues with alcohol.
D. Demand the patient provide an accurate account of how much they drink.

The patient then begins to develop confusion and the AWP is initiated.

Question # 3 – What action should the nurse take next?

A. Ensure the patient's blood work is drawn as per the standardized orders.
B. Use physical restraints on the patient because he is confused, and you do not want him to get out of bed.
C. Complete a set of vital signs on the patient, and score him according to the CIWA-Ar.
D. Turn off the lights, and let the patient get some rest. This may help him feel better.

Question # 4 - The patient requires Ativan for his increasing symptoms. What is most important for the nurse to consider?

A. The patient has an epidural; therefore, the nurse needs to alter anesthesia before administering Ativan.
B. The patient has never had Ativan before.
C. The patient's family is concerned about the medication increasing the patient's confusion.
D. The patient is refusing PO medications.

Question #5 – On postoperative day 10, the patient is still on the unit due to an acquired postoperative infection. The nurse notes that the patient has not scored on the AWP since post-operative day 3. The nurse should:

A. Continue to assess the patient for AWS.
B. Call the doctor to inform him/her of the patient's success.
C. Discontinue the AWP.
D. Tell the patient that he is doing so well, he should no longer want to drink when he goes home.

Case Study 1 Answers

Question # 1: A

A CAGE score of 2 is suggestive of AUD. The nurse should ask more detailed questions to the patient and his family regarding his alcohol use, so he/she can better understand the patient's alcohol use patterns and risk for AWS.

Question # 2: B

The family's statement about the patient's alcohol use is listed by the ICD 10 and the DSM5 as signs and symptoms of AUD. This combined with a score of 2 on the CAGE is indicative of an AUD diagnosis.

Question # 3: C
If a patient is demonstrating signs of AWS, they should be assessed and scored as per the CIWA-Ar.

Question # 4: A
Although all of these things are important for the nurse to consider, Ativan is one of the medications that has to be approved by Anesthesia before administration due to the epidural protocol within Eastern Health.

Question # 5: C
After 7 days of not scoring, the AWP can be discontinued.

Case Study 2

A 48-year-old female is admitted from the emergency department to the surgical unit with pancreatitis. During report, the emergency room (ER) nurse informs the surgical nurse that in the past this patient has been admitted 3 times for pancreatitis, but really does not have much of a medical history. The patient was medicated for pain in the ER with 5mg of morphine, which settled her pain.

The patient arrives to the floor and is extremely distraught. The patient stated that she thought she just saw spiders on the walls of her room, and she is tachycardic. The nurse escorting the patient said this behaviour is new for her and the patient does not have a history of mental health issues. Prior to this change, the nurse stated that her biggest concern was the patient's persistent headache and tremor.

The nurse suspects the person may be in early AWS as pancreatitis is associated with heavy alcohol consumption. When the chart is checked for the CAGE questionnaire, it is noted to be incomplete.

Question # 1 - What action should the nurse take **first**?

A. Notify the physician of the patient's change in status.
B. Administer the CAGE questionnaire to the patient.
C. Assume the CAGE was not completed because the person does not drink.
D. Ask the patient if she has mental health issues.

Question # 2 – After the patient settles, the nurse decides to administer the CAGE questionnaire. However, once drinking was mentioned, the patient denied drinking, withdrew from the conversation, and stopped making eye contact. The nurse should:

A. Believe the patient when she states she does not drink.
B. Tell the patient you believe she is not being honest.
C. Explain to the patient the importance of reporting an accurate drinking history and explain the seriousness of alcohol withdrawal.
D. Call the patient's next of kin to ask about her drinking habits.

Question # 3 - The patient admits to consuming an average of 8 drinks per day and scores a 4 on the CAGE. The physician is notified and the AWP is initiated. The physician states that he would like the patient to receive regular Clonazepam in addition to the Ativan as ordered with the CIWA-Ar. The nurse feels uncomfortable administering both and should:

A. Refuse to administer both.

B. Do as the physician wishes.
C. Identify that regular benzodiazepines can be administered in conjunction with the symptoms triggered doses, but call the hospital pharmacy to confirm this.
D. Ask a co-worker for his/her opinion.

Question # 4 – The nurse knows that other things are required in addition to benzodiazepine treatments for the patient with AWS including:

A. Nutritional dietary supplements, such as boost.
B. Medication administration of thiamine, folic acid, and multivitamins.
C. IV fluids.
D. All of the above.

Question # 5 – The patient's pancreatitis resolves. The nurse is preparing the patient for discharge. The nurse should:

A. Lecture the patient on her alcohol intake and tell her that she must stop drinking.
B. Educate the patient on the signs and symptoms of AWS, as well as pancreatitis, and tell her to come back to the hospital if she exhibits these signs at home.
C. Educate the patient on the detrimental effects alcohol has on the body and provide her with a list of resources to help her quit drinking.
D. Both B and C

Case Study 2 Answers

Question # 1: A
The physician should be notified of the change in status first, and then the CAGE questionnaire should be administered.

Question # 2: C
By explaining to the patient the detrimental effects of AWS and the importance of an accurate assessment, you are creating an opportunity for an open discussion with the patient.

Question # 3: C
Although both regular benzodiazepine administration and symptom triggered dosing can be used together, if a nurse is not comfortable administering both, it is always best to talk to the pharmacist about possible contraindications.

Question # 4: D
All of the above are a part of the management of AWS.

Question # 5: D
It is important to provide education to the patient, while encouraging her to try and reduce her alcohol consumption with the help of local resources.

Case Study 3

The nurse returns from break to find her assigned 75-year-old male patient wandering the halls, looking lost. Two days ago, the patient had a right lower lobectomy for lung cancer, and has just moved out of a step-down special care unit onto the floor. The patient is holding his chest tube, and he has pulled his IV out and is holding it in his hand.

The patient has a past history of alcohol use, but had stated on admission that he "doesn't really drink anymore." As a precaution, the patient was started on the AWP and has been scoring between 6-8, not high enough to require medication.

Question # 1 - What should the nurse do **first**?

A. Escort the patient back to his room, and place him in restraints.
B. Escort the patient back to his room, assess his vital signs, and score him using the CIWA-Ar.
C. Scold the patient for getting out of bed.
D. Run back to the nursing station to call the physician.

Question # 2 – Although the patient is medicated using the CIWA-Ar, his symptoms of AWS become worse and he starts to become very aggravated and disorientated. To best help the patient the nurse should:

A. Score the patient using the CIWA-Ar and administer the appropriate amount of alcohol.
B. Move the patient to an available private room.
C. Call the patient's family to come and sit with him.
D. All of the above.

The patient becomes increasing aggressive and becomes violent towards the nursing staff, using his chest tube as a weapon. A Code white is called, and the patient is assisted back to bed.

Question # 3 – The patient is still swinging his arms and swearing at the nurses, stating they are trying to kill him. The nurse should **first**:

A. Apply physical restraints as ordered by the physician.
B. Ask his family to come in to try and calm him down.
C. Walk away from the patient. The nurse should not tolerate that behaviour.
D. Ask the physician to come and assess the patient.

Question # 4 – The physician orders Haldol to help calm the patient. The nurse should:

A. Refuse to administer Haldol because of its ability to lower the seizure threshold.
B. Administer Haldol because it is a necessary treatment for the patient to reduce the risk of harm towards him or others around him.
C. Question the doctor's order and ask if he/she would prefer Ativan as per the CIWA-Ar.
D. Tell the doctor to administer the Haldol himself, as nurses on the unit are not responsible for this action.

Question # 5 - After 24 hours of being restrained, the nurse finds the patient to be more orientated and not aggressive. The nurse should:

A. Loosen his restraints so he can have more movement.
B. Leave the restraints in place just in case.
C. Remove his restraints.
D. Ask his family what they would like you to do with regards to the restraints.

Case Study 3 Answers

Question # 1: B
Although the physician should be notified, it is most important to first escort the patient back to his room, assess his vital signs, and score him using the CIWA-Ar. Restraints are not yet required; it would be more appropriate to place the patient on close observations.

Question # 2: D
All of the above are appropriate interventions.

Question # 3: A
Since they were ordered by the physician, the nurse should first place the patient in physical restraints to ensure that he does not harm himself or others, while the nurse completes other tasks as required.

Question # 4: B
Haldol is appropriate for this patient at this time.

Question # 5: C
The patient no longer requires the restraints; therefore, they should be removed by the nurse. If the patient does require them again, the nurse can put them back in place.

References

American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders DSM-5* (5th ed.). Arlington, VA: Author.

Bayard, M., Mcintyre, J., Hill, K., & Woodside, J. (2004). Alcohol withdrawal syndrome. *American Family Physician, 69*(6), 1443-50. Retrieved from https://www.aafp.org/afp/2004/0315/p1443.html

Beckman Murray, R., Proctor Zentner, J. P., Pangman, V. C., & Pangman, C. (2009*). Health promotion strategies through the lifespan* (Second Canadian Edition). Manitoba*:* Pearson Education Canada.

Berl, K. L., Collins, M., Melson, J., Mooney, R., Muffley, C., & Wright-Glover, A. (2015). Improving nursing knowledge of alcohol withdrawal: Second generation education strategies. *Journal for Nurses in Professional Development, 31*(6), 328-332. doi: 10.1097/NND.0000000000000176.

Bonnet, U., Lensing, M., Specka, M., & Scherbaum, N. (2010). Comparison of two oral symptom-triggered pharmacological inpatient treatments of acute alcohol withdrawal: Clomethiazole vs. clonazepam. *Alcohol and Alcoholism, 46*(1), 68-73. doi:10.1093/alcalc/agq081

Bradley, K. A., DeBenedetti, A. F., Volk, R. J., Williams, E. C., Frank, D., & Kivlahan, D. R. (2007). AUDIT-C as a brief screen for alcohol misuse in primary care. *Alcoholism, Clinical and Experimental Research*, *31*(7), 1208-1217. doi: 10.1111/j.1530-0277.2007.00403.x

Carpenito-Moyet, L. J. (2009). *Nursing care plans & documentation: Nursing diagnoses and collaborative problems*. Philadelphia, PA: Lippincott Williams & Wilkins.

Centre for Addiction and Mental Health. (2012). *About Alcohol.* Retrieved from http://www.camh.ca/en/hospital/health_information/a_z_mental_health_and_addiction_information/alcohol/Pages/about_alcohol.aspx

Center for Disease Control. (2016). *Fetal Alcohol Spectrum Disorder (FASDs). Alcohol use in pregnancy.* Retrieved from https://www.cdc.gov/ncbddd/fasd/alcohol-use.html

Centre for Disease Control. (2018). *Alcohol and public health. Fact sheets – Alcohol use and your health.* Retrieved from https://www.cdc.gov/alcohol/fact-sheets/alcohol-use.htm

Cunningham, L., & Puskar, K. (2007). Nursing implications of alcohol withdrawal in the postoperative orthopaedic patient. *Journal of Orthopaedic Nursing, 11*(2), 91-97. doi: dx.doi.org/10.1016/j.joon.2007.02.006

Duby, J., Berry, A., Ghayyem, P., Wilson, M., & Cocanour, C. (2014). Alcohol withdrawal syndrome in critically ill patients: Protocolized versus nonprotocolized management. *The Journal of Trauma and Acute Care Surgery, 77*(6), 938-43. doi: 10.1097/TA.0000000000000352.

Eastern Health. (2007). *Alcohol screening and withdrawal protocol adult acute care.* Retrieved from https://connect.easternhealth.ca/dana/home/launch.cgi?url=http%3A%2F%2Fpulse. easternhealth.ca

Eastern Health. (2010). *Client surveillance (acute/ long term care exemption: Mental Health and Addictions Program).* Retrieved from https://connect.easternhealth.ca/dana/home/launch.cgi?url=http%3A%2F%2Fpulse.

Eastern Health. (2012). *Reducing substance use risks and harms summary.* Retrieved from www.easternhealth.ca/DownFile.Aspx?fileid=207

Elliott, D. Y., Geyer, C., Lionetti, T., & Doty, L. (2013). Managing alcohol withdrawal in hospitalized patients. *Nursing Critical Care 2013, 42*(4), 22-30. Retrieved from http://clinicaleffectiveness.uchicago.edu/files/2013/05/managing-alcohol-withdrawal-Elliott.pdf

Freeman, T., Roche, A., Williamson, P., & Pidd, K. (2011). Hazardous alcohol use interventions with emergency patients: Self-reported practices of nurses, and predictors of behavior. *Emergency Medicine Australasia, 23*(4), 479-489. doi: 10.1111/j.1742-6723.2011.01416.x.

Genther, D., & Gourin, C. (2012). The effect of alcohol abuse and alcohol withdrawal on short-term outcomes and cost of care after head and neck cancer surgery. *Laryngoscope, 122*(8), 1739-1747. doi:10.1002/lary.23348

Gili-Miner, M., Béjar-Prado, L., Gili-Ortiz, E., Ramírez-Ramírez, G., López-Méndez, J., López-Millán, J. M., & Sharp. B. (2014). Alcohol use disorders among surgical patients: Unplanned 30-days readmissions, length of hospital stay, excessive costs and mortality. *Drug and Alcohol Dependence, 137,* 55-61. doi: 10.1016/j.drugalcdep.2014.01

Gordon, A., Olstein, J., & Conigliaro, J. (2006). Identification and treatment of alcohol use disorders in the perioperative period. *Postgraduate Medicine, 119*(2), 46-55. doi: 10.3810/pgm.2006.07.1743

Government of Canada. (2013). *Alcohol abuse.* Retrieved from https://www.canada.ca/en/health-canada/services/substance-abuse/alcohol-abuse.html

Halter, M. J. (2014). *Varcarolis's Canadian psychiatric mental health nursing, A Clinical Approach*. Toronto, ON: Saunders, Elsevier Health Sciences.

Hoffman, R. S., & Weinhouse, G. L. (2017). *Management of moderate and severe alcohol withdrawal syndromes*. Retrieved from https://www.uptodate.com/contents/management-of-moderate-and-severe-alcohol-withdrawal-syndromes

Jane, L. (2010). How is alcohol withdrawal syndrome best managed in the emergency? department? *International Emergency Nursing, 18*(2), 89–98. doi: 10.1016/j.ienj.2009.09.001.

Kip, M. J., Neumann, T., Jugel, C., Kleinwaechter, R., Weiss-Gerlach, E., MacGuill, M., & Spies, C. D. (2008). New strategies to detect alcohol use disorders in the preoperative assessment clinic of a German university hospital. *Anesthesiology: The Journal of the American Society of Anesthesiologists, 109*(2), 171-179. doi: 10.1097/ALN.0b013e31817f5be3

Martin, P. R., & Hiller-Sturmhofel, S. (2004). *The role of thiamine deficiency in alcoholic brain disease.* The National Institute of Alcohol Abuse and Alcoholism. Retrieved from https://pubs.niaaa.nih.gov/publications/arh27-2/134-142.htm

Mayfield, D., McLeod, G., & Hall, P. (1974). The CAGE questionnaire: Validation of a new alcoholism screening instrument. *American Journal of Psychiatry, 131*(10), 1121-1123. doi: 10.1176/ajp.131.10.1121

McBride, R. (201). *Talking to patients about topics: Techniques for increasing the reliability of patient self-report.* Retrieved from https://www.drugabuse.gov/sites/default/files/sensitive-topics-lecture.pdf

McKeown, N. (2017). *Alcohol withdrawal syndromes medications. Medscape.* Retrieved from https://emedicine.medscape.com/article/819502medication?pa=bi1USug%2F7%2FVwwFxpmc6dCsZHHaqiimPDNDE7uhp2p62%2Bz6kbkqG1JT6cU8CRfzAhwU1EZrXMVB0oYl%2FMk7VfRHf7Bj2Gvk6BKC47oRZ1BB8%3D#2

Melson, J., Kane, M., Mooney, R., McWilliams, J., & Horton, T. (2014). Improving alcohol withdrawal outcomes in acute care. *The Permanente Journal, 18*(2), E141-5. doi: 10.7812/TPP/13-099.

Mirijello, A., D'Angelo, C., Ferrulli, A., Vassallo, G., Antonelli, M., Caputo, F., ... & Addolorato, G. (2015). Identification and management of alcohol withdrawal syndrome. *Drugs, 75*(4), 353-365. Retrieved from: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4978420/

Mueller, G., Schumacher, P., Wetzlmair, J., & Pallauf, M. (2016). Screening questionnaires to identify problem drinking in the primary care setting: A systematic review. *Journal of Public Health, 24*(1), 9-19. doi: 0.1007/s10389-015-0694-3

Myers, L., & Isralowitz, R. E. (2011). *Alcohol: Health and medical issues today*. Greenwood Publishing Group, USA.

National Institute on Alcohol Abuse and Alcoholism. (2017). *Alcohol use disorder.* Retrieved from https://www.niaaa.nih.gov/alcohol-health/overview-alcohol-consumption/alcohol-use-disorders

Ng, K., Dahri, K., Chow, I., & Legal, M. (2011). Evaluation of an alcohol withdrawal protocol and a preprinted order set at a tertiary care hospital. *The Canadian Journal of Hospital Pharmacy, 64*(6), 436. Retrieved from https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3242577/

Oppedal, K., Moller, A., Pedersen, B., & Tonnesen, H. (2012). Preoperative alcohol cessation prior to elective surgery. *Cochrane Database of Systematic Reviews,* (7), CD008343. doi: 10.1002/14651858.CD008343.pub2

Perry, P. A., & Potter, A. G. (2010). *Clinical nursing skills and techniques*. St. Louis, MO: Moby Elsevier.

Public Health Agency of Canada. (2015). *The Chief Public Health Officer's report on the state of public health in Canada, 2015: Alcohol consumption in Canada.* Retrieved from http://healthycanadians.gc.ca/publications/department-ministere/state-public-health-alcohol-2015-etat-sante-publique-alcool/alt/state-phac-alcohol-2015-etat-aspc-alcool-eng.pdf

Rainier, N. C. (2014). Reducing physical restraint use in alcohol withdrawal patients: A literature review. *Dimensions of Critical Care Nursing*, *33*(4), 201-206. doi: 10.1097/DCC.0000000000000059

Repper-Delisi, J., Stern, T. A., Mitchell, M., Lussier-Cushing, M., Lakatos, B., Fricchione, G. L., ... Capasso, V. (2008). Successful implementation of an alcohol-withdrawal pathway in a general hospital. *Psychosomatics*, *49*(4), 292-299. doi: 10.1176/appi.psy.49.4.292

Riddle, E., Bush, J., Tittle, M., & Dilkhush, D. (2010). Alcohol withdrawal: Development of a standing order set. *Critical Care Nurse*, *30*(3), 38-48. doi:10.4037/ccn2010862

Rosenbaum, M., & McCarty, T. (2002). Alcohol prescription by surgeons in the prevention and treatment of delirium tremens: Historic and current practice. *General Hospital Psychiatry, 24*(4), 257-259. doi: 10.1016/S0163-8343(02)00188-3

Royal College of Physicians. (2010). *Alcohol use disorders. Diagnosis and clinical management of alcohol-related physical complications.* Retrieved from https://www.ncbi.nlm.nih.gov/pubmedhealth/PMH0047849/pdf/PubMedHealth_PMH0047849.pdf

Sachdeva, A., Choudhary, M., & Chandra, M. (2015). Alcohol withdrawal syndrome: Benzodiazepines and beyond. *Journal of Clinical and Diagnostic Research: JCDR, 9*(9). Retrieved from https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4606320/

Saunders, J. B., Aasland, O. G., Babor, T. F., De la Fuente, J. R., & Grant, M. (1993). Development of the alcohol use disorders identification test (AUDIT): WHO collaborative project on early detection of persons with harmful alcohol consumption-II. *Addiction, 88*(6), 791-804. doi: 10.1111/j.1360-0443.1993.tb02093.x

Springer, G. (2015). Focus on … Safe use of restraints. *American Nurse Today, 10(1), 26-32. Retrieved from: https://americannursetoday.com/wp-content/uploads/2015/01/ant1-Restraints-1218.pdf*

Statistics Canada. (2013a). *Heavy drinking.* Retrieved from http://www.statcan.gc.ca/pub/82-625-x/2014001/article/14019-eng.htm

Statistics Canada. (2013b). *Heavy drinking, by sex, province, and territories (number of persons).* Retrieved from http://www.statcan.gc.ca/tables-tableaux/sum-som/l01/cst01/health80a-eng.htm

Sutton, L. J., & Jutel, A. (2016). Alcohol withdrawal syndrome in critically ill patients: Identification, assessment, and management. *Critical Care Nurse, 36*(1), 28-39. doi:10.4037/ccn2016420

Swift, R. A., Peers, E. A., Jones, B. L., & Bronson, M. V. (2010). Utilization of a purpose-designed chart for the nursing management of acute alcohol withdrawal in the hospital setting. *Australasian Emergency Nursing Journal*, *13*(3), 70-77. doi: 10.1016/j.aenj.2010.04.001

Tran, D. T., Stone, A. M., Fernandez, R. S., Griffiths, R. D., & Johnson, M. (2009). Changes in general nurses' knowledge of alcohol and substance use and misuse after education. *Perspectives in Psychiatric Care*, *45*(2), 128-139. doi: 10.1111/j.1744-6163.2009.00213.x

Tsai, Y. F., Tsai, M. C., Lin, Y. P., Weng, C. E., Chou, Y. L., & Chen, C. Y. (2011). An alcohol training program improves Chinese nurses' knowledge, self-efficacy, and practice: A randomized controlled trial. *Alcoholism: Clinical and Experimental Research*, *35*(5), 976-983. doi: 10.1111/j.1530-0277.2010.01428.x

World Health Organization. (2017). *Management of substance abuse. Global strategy to reduce harmful use of alcohol*. Retrieved from http://www.who.int/substance_abuse/activities/gsrhua/en/

Appendix A: Patient Education Pamphlet
Alcohol and Surgery: A Bad Mix

Harmful alcohol drinking patterns can be dangerous for patients having surgery because it puts them at higher risk for problems after surgery, such as longer hospital stays, admissions to the intensive care unit (ICU), and even death.

What is alcohol? Alcohol is a drink that contains ethyl alcohol or ethanol. It is a depressant that slows down the brain.

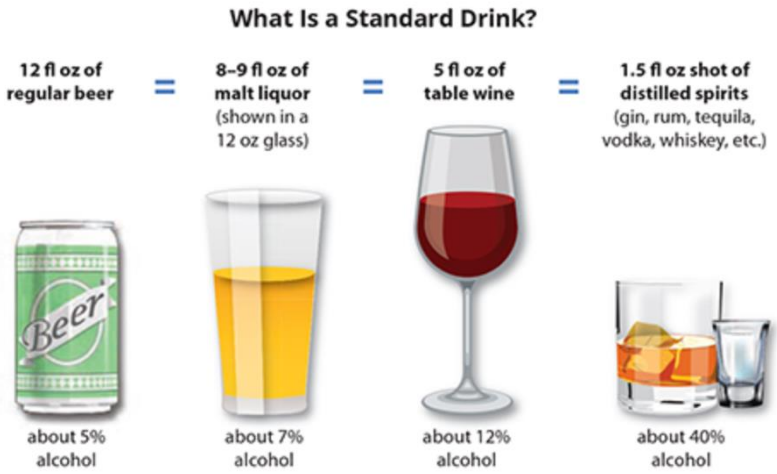


Figure 1 Comparing standard drinks
Retrieved from: https://www.niaaa.nih.gov/alcohol-health/overview-alcohol-consumption/what-standard-drink

Standard drinks are what are used to measure the amount of alcohol you are drinking.

What is Harmful/ Hazardous Drinking?

Harmful or hazardous drinking is a type of drinking that is dangerous because of the amounts of alcohol the person drinks. It is heavy alcohol use that causes damage to a person's physical or mental health.

Heavy alcohol use is classified in:

- Women who drink more than 8 drinks per week
- Men who drink more than 15 drinks per week
- People who binge drink more than 5 days per month

(CDC, 2018)

Binge drinking is also a type of harmful drinking. Binge drinking is drinking too much in a short time. For **women**, this means drinking **4 or more drinks in about**

2 hours, and for men this means **drinking 5 or more drinks in about 2 hours** (CDC, 2018).

People who engage in harmful drinking are at higher risk for problems after surgery, when compared to people who drink less.

What is Alcohol Dependence?

Alcohol dependence or alcoholism is the heaviest form of drinking. A person may have alcohol dependency when they crave alcohol, think about alcohol often, and have built up a tolerance for drinking, meaning they can drink a large amount before feeling the effects (Kip et al., 2008). People who are alcohol dependent continue to drink even though they know their drinking is harmful.

How do you know if you or your loved one are alcohol dependent?

1. You drink alcohol in larger amounts and over longer periods than you intend.
2. You want to cut down on your drinking, but you cannot.
3. A large amount of your time is spent getting alcohol, using alcohol, or recovering from hangovers or alcohol use.
4. You crave alcohol and you have a strong urge to drink.
5. Due to your drinking, you have failed to complete tasks at work, school, or at home.
6. You continue to drink alcohol even though it causes problems between you and your family members or friends.
7. You have given up activities that are important to you because of alcohol use.
8. You drink in places that are dangerous to your health.
9. You continue to drink even though you know it is causing problems to your health and in your life.
10. You have developed a **tolerance to alcohol.**
11. You experience symptoms of **withdrawal** when drinking is decreased or stopped.

(NIAAA, 2017)

Why is it important to talk about your drinking when you are having surgery?

When people are admitted to the hospital for any reason they will **always be asked about their drinking at home**. If a person is a heavy or hazardous drinker, or if they are alcohol dependent, he/she could run into some serious problems after surgery that may keep them in the hospital longer, or even lead to death.

It is important to accurately tell nurses or physicians the amount you drink because this will help them to better care for you after your surgery. It will also help them know if you are at risk for alcohol withdrawal syndrome (AWS).

What is Alcohol Withdrawal?

People who drink large amounts of alcohol often are at risk for **alcohol withdrawal syndrome (AWS)** if they decrease the amount they drink or stop drinking together. Without alcohol, the brain and body no longer know how to act and this causes the symptoms of AWS. AWS can start within a few hours of the last drink, but it usually begins within 24-48 hours.

Symptoms range from mild, moderate, to severe, and are different in each person depending on how much alcohol the person regularly drinks and how many hours it has been since the last drink (Kip et al., 2008).

The most common symptoms include:

Symptoms of Mild AWS	Symptoms of Moderate AWS	Symptoms of Severe AWS
• Mild shakes • Sweating • Increased heart rate • Inability to Sleep • Upset stomach • Mild headaches	• Confusion • Fever • High blood pressure • Seeing or hearing things • Aggression and angry behaviour • Increased shakes, sweatiness, stomach upset, headache, and anxiety.	• Person does not know where they are, or who they are • Hallucinations • Seizures • Increased aggression and agitation • Blackouts • Dangerous heart rate, blood pressure, and body temperature.

If nurses and doctors do not know about your drinking, they cannot provide you with treatment until you are already experiencing withdrawal symptoms. In the beginning, these symptoms are not easily noticed. However, if nurses know how much you drink, they will keep an eye out for them, catching them early.

The nurse may ask you questions about your drinking, and it is very important that you provide truthful and accurate answers for these reasons.

Who is at risk for Alcohol Withdrawal?

- People who drink in harmful or hazardous ways
- People who are alcohol dependent
- People over the age of 65 are at higher risk for alcohol withdrawal if they participate in heavy drinking

If you are not sure if you are at risk, you should mention this to a nurse or physician at any point before your surgery. They will tell you if you are or not based on your drinking patterns at home.

What can happen if you have alcohol after surgery?

- Infection
- Heart and lung problems, such as irregular heart rates and problems breathing
- Increased chance of bleeding
- Increased chance of injury due to confusion and outbursts of anger
- Reduced immune system
- Increased time in hospital
- Admission to the Intensive Care Unit (ICU)
- If left untreated, death may occur

Can alcohol withdrawal be treated?

Patients at risk for alcohol withdrawal are all treated in the same way. This includes a combination of medications and supportive treatments to decrease symptoms and ensure safety.

Tips for avoiding alcohol withdrawal after surgery:

1. Honestly discuss with the nurse or doctor the amount you or your loved one drinks at home. The staff frequently care for people who drink and are well prepared to do so. They want to know about your drinking habits so they can best help you after surgery.

2. Avoid drinking alcohol 24 hours before your surgical procedure or admission to hospital.

3. Cooperate with nurses and physicians when they are treating you for alcohol withdrawal and be open to different types of care to keep you safe.

4. Ensure you are eating a proper diet full of thiamine rich foods, such as **meats, poultry, whole grains cereals, nuts, and dried beans,** and foods fortified with folate. Otherwise take thiamine, folic acid, and multivitamin supplements at home.

References

Centre for Disease Control. (2018). *Alcohol and public health. Fact sheets – Alcohol use and your health.* Retrieved from https://www.cdc.gov/alcohol/fact-sheets/alcohol-use.htm

Kip, M. J., Neumann, T., Jugel, C., Kleinwaechter, R., Weiss-Gerlach, E., MacGuill, M., & Spies, C. D. (2008). New strategies to detect alcohol use disorders in the preoperative assessment clinic of a German university hospital. *Anesthesiology: The Journal of the American Society of Anesthesiologists*, *109*(2), 171-179. doi: 10.1097/ALN.0b013e31817f5be3

National Institute on Alcohol Abuse and Alcoholism. (2017). *Alcohol use disorder.* Retrieved from https://www.niaaa.nih.gov/alcohol-health/overview-alcohol-consumption/alcohol-use-disorders

Statistics Canada. (2013). *Heavy drinking.* Retrieved from http://www.statcan.gc.ca/pub/82-625-x/2014001/article/14019-eng.htm

Appendix B: Patient Education Poster for Surgical Setting

ARE YOU HAVING SURGERY?

DO YOU DRINK ALCOHOL?

Please take a handout

- Almost 3 in 10 people in Newfoundland and Labrador have harmful patterns of drinking alcohol, which is one of the highest rates in Canada.
- Harmful patterns of drinking alcohol can cause serious problems, even death, in patients having surgery.
- The problems can be prevented by accurately telling your nurse or doctor about your patterns of drinking alcohol.

There are ways we can help prevent this!

IF YOU DO DRINK

Tell your nurse or doctor:
How much you drink
AND
How often you drink

Be as accurate as possible. This will help us to help you.

Do not drink 24 hours before surgery

Read to find out more for you or a loved one

Appendix C: Eastern Health's Alcohol Withdrawal Protocol

Eastern Health

ALCOHOL- SCREENING AND WITHDRAWAL PROTOCOL- ADULT ACUTE CARE	Patient/Resident/Client care PRC-003

Issuing Authority	**Pat Coish-Snow, Vice-President, Regional Acute Care** Signed by Pat Coish-Snow Dated May 20, 2011
Office of Administrative Responsibility	Professional Practice-Nursing
Author	Barb Earles and Karen Whitehorne Mental Health Nurse Consultants
Level	II (Two)
Original Approval Date	May 20, 2011
Effective Date	Upon signature
Review Date	May 2014
Revision Date(s)	

Overview

This protocol can be implemented once education is completed.

The CAGE questionnaire (Attachment A) is a validated screening tool used to identify alcoholism and therefore identifies those who may be at risk for alcohol withdrawal.

The Clinical Institute Withdrawal Assessment of Alcohol (CIWA) Scale is a validated (in non-hospitalized clients) scoring system for assessment of the severity of alcohol withdrawal symptoms. The Alcohol Withdrawal Protocol is used to provide optimum management of clients in alcohol withdrawal or clients at risk to develop symptoms of alcohol withdrawal.

Note: Clients who are already showing signs of Delirium Tremens are unlikely to respond to this protocol and may require regular dosing of Lorazepam, antipsychotic medications and a Psychiatry consult.

POLICY

All clients (aged 19 and over) who are admitted to inpatient units at the adult acute care institutions and who answer yes to drinking alcohol will be screened for alcohol withdrawal syndrome using the CAGE questionnaire.

The CAGE questionnaire will be administered **at the point of entry** into the

healthcare system (i.e. Emergency Department., Pre-Admission Clinic or direct admission to an in-patient unit).

If the CAGE questionnaire score is suggestive or diagnostic of alcoholism, a physician's signature on the doctor's order sheets (Medication, Attachment B and Non-Medication, Attachment C) is required to initiate the Alcohol Withdrawal Protocol.

Scope

This policy applies to physicians, RN's (and LPN's for the CAGE questionnaire screening) practicing in adult acute care units.

Purpose

To provide guidance to the health care professional for the optimum management of clients in alcohol withdrawal or clients at risk of developing symptoms of alcohol withdrawal.

Procedure

1. The CAGE questionnaire is performed by the nurse on all clients being admitted to adult acute care institutions to identify those at risk for alcohol withdrawal.

2. If the CAGE questionnaire score is suggestive or diagnostic of alcoholism a physician is notified by the nurse.

3. When the Alcohol Withdrawal Protocol is ordered by the physician, the RN performs the assessment and documentation of alcohol withdrawal using the Alcohol Withdrawal Assessment Record (Attachment D).

4. Surveillance is based on the assessed level of risk for harm to self or others, as well as the client's medical condition, or as ordered by the physician (Client Surveillance Policy-204(NUR)-2-020).

5. It is recommended that the same RN performs and completes the assessment record to increase the reliability of findings.

6. Lorazepam administered as part of the Alcohol Withdrawal Protocol is transcribed to the Medication Administration Record (MAR) and documented on the Alcohol Withdrawal Assessment Record.

7. Document medication administration on the Alcohol Withdrawal Assessment Record, as appropriate.

8. Notify the physician if the protocol is not controlling the signs and symptoms of alcohol withdrawal.

9. Any time there is a change in the patient status suggestive of alcohol withdrawal the CIWA should be reassessed by the RN.

Supporting Documents *(References, Industry Best Practice, Legislation, etc.)*

Hofferman, R.S., Weinhouse, G.L. (2009). Management of Moderate and Severe Alcohol Withdrawal Syndromes. http://www.uptodate.com/online/content/topic.do?topicKey=ad_tox/4456&selectedTitle=1%7E150&source=search_result
Ewing, John A. (1984). "Detecting Alcoholism: The CAGE Questionnaire" *JAMA* 252: 1905-1907,

Linkages

- Client Surveillance Policy 204(NUR)-2-020
- Hand Hygiene Policy IPC-150.
- Routine Practices Policy IPC-200
- Positive Patient Identification Policy PRC-130

Key Words

Alcohol Withdrawal
Alcohol Withdrawal Protocol
CAGE Questionnaire

Definitions & Acronyms

AWP	Alcohol Withdrawal Protocol
CAGE questionnaire	The **CAGE questionnaire**, the name of which is an acronym of its four questions, is a widely used method of screening for alcoholism.
CIWA	Clinical Institute Withdrawal Assessment of Alcohol Scale
MAR	Medication Administration Record
RN	Registered Nurse
LPN	Licensed Practical Nurse

Policy History This policy replaces the following policies:

Legacy Board	Policy #	Policy Name	Date Revised
HCCSJ	11 A-35	Alcohol Withdrawal Protocol	01 2007

Key: HCCSJ – Health Care Corporation of St. John's

Eastern Health

CAGE Questionaire

Name:

MCP#:

Chart #:

1. Have you ever felt that you should **C**ut down your drinking?. ☐ Yes ☐ No

2. Have people **A**nnoyed you by criticizing your drinking ? ☐ Yes ☐ No

3. Have you ever felt badly or **G**uilty about your drinking? ☐ Yes ☐ No

4. Have you ever had a drink upon waking to steady your nerves or to relieve a hangover (**E**ye-opener)?

Two positive responses are suggestive of alcoholism, and three or four are diagnostic.

Score _____

How much do you drink per week?

Beer _____

Wine_____

Alcohol _____

Do you think this person is at risk for alcohol withdrawal? ☐ Yes ☐ No

Signature _____

Date _____

Eastern Health

Doctor's Order Sheet
Alcohol Withdrawal Protocol
Medication

Name:

MCP#:

Chart #:

Patient's Name:_____

CIWA-Ar = Clinical Institute Withdrawal Assessment of Alcohol Scale, revised

ALLERGIES ☐ **NO KNOWN ALLERGIES**

If CIWA-Ar 10 or greater, administer the specified medication every hour at dosage corresponding to the observed CIWA-Ar score. Continue therapy until the CIWA-Ar score is less than 10 or the patient is sedated.

CIWA-Ar Score	Lorazepam Dosage	
0-9	0 mg oral/sublingual	0 mg IV
10-12	1 mg oral/sublingual	0.5 mg IV
13-14	2 mg oral/sublingual	1 mg IV
15-17	3 mg oral/sublingual	1.5 mg IV
Over 17	4 mg oral/sublingual	2 mg IV

* Conversion Chart: Every 0.5 mgs of IV Lorazepam is equivalent to 1mg of oral or sublingual Lorazepam

1. Thiamine 100 mg IV or IM for the first dose.
   Then
   Thiamine 100 mg PO or IM or IV daily.

2. ☐ Multivitamins one tablet PO daily
   or
   ☐ Multivitamins 10 mL in 500 mL of normal saline IV over 2 hours daily.

3. Folic acid 1 mg PO daily

Consultation request:

☐ Psychiatry, if suspected psychiatric illness, (visual, auditory, and tactile hallucinations), especially if delirium tremens present

☐ Social Work

☐ ICU: If significant cardio/respiratory and/or Central Nervous System changes.

Medications for complications of withdrawal require separate orders.
Seizures require Benzodiazepine therapy regardless of CIWA-Ar scores.
Beta Blockers may mask the early symptoms of withdrawal

Physician' s Signature: _____ Date: DD/MONTH/YYYY Time: _____

Nurse's Signature: _____ Date: DD/MONTH/YYYY Time: _____

Nurse's Signature: _____ Date: DD/MONTH/YYYY Time: _____

White Copy - Chart Yellow Copy - Pharmacy

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Eastern Health

Doctor's Order Sheet
Alcohol Withdrawal Protocol
Non-Medication

Name:

MCP#:

Chart #:

CIWA-Ar = Clinical Institute Withdrawal Assessment of Alcohol Scale, revised

ALLERGIES ☐ **NO KNOWN ALLERGIES**

Preamble: The following orders are appropriate after a clinical diagnosis of Alcohol Withdrawal Syndrome (DSMIV) is confirmed. This order sheet is not to be used for alcohol intoxication without features of withdrawal. Other related diagnoses such as polydrug withdrawal, hypoxia, and other causes of delirium must be excluded.

1. Monitor CIWA-Ar scale, blood pressure, temperature, pulse and respirations **hourly** until CIWA-Ar score is 10 or less for **three** consecutive measurements.

Then:

- Every 4 hours for 12 hours.
- Every 12 hours for 7 days.

2. After 10 days of doing CIWA scale once daily, the protocol may be discontinued.
3. If scale is 10 or greater, resume hourly assessment.
4. **When possible**, consistency in nursing staff is desirable to increase reliability of ratings.
5. **Call physician if:**

Vital Signs parameters (optional) _____
Respirations less than 10 per minute
Change in mental status or obtundation
CIWA-Ar score increase of more than 10 over the previous measurement
Cumulative dose in the first 24 hour period or any subsequent 24 hour period.
Lorazepam 16 mg IV
Lorazepam 32 mg Oral/Sublingual

*Conversion Chart: Every 0.5 mgs of IV Lorazepam is equivalent to 1mg Oral/Sublingual Lorazepam

Management considerations:

Investigations (note: lab mnemonic for all tests is /AWS)

☐ Albumin
☐ Blood Alcohol Level
☐ Blood and Urine Toxic Screen (if clinically indicated)
☐ Calcium
☐ CBC
☐ Chest X-ray (PA/Left LAT)
☐ Glucose
☐ Creatinine
☐ EKG
☐ GGT
☐ LFT's
☐ Electrolytes
☐ Magnesium
☐ Inorganic Phosphate
☐ PT/INR
☐ Urinalysis
☐ Urea

Physician' s Signature: _____ Date: _____ Time: _____

Nurse's Signature: _____ Date: _____ Time: _____

Eastern Health

Alcohol Withdrawal Assessment Record

Name:

MCP#:

Chart #:

Year Month Date:																		
Time:																		
Nausea & Vomiting																		
Tremor																		
Paroxysmal Sweats																		
Anxiety																		
Agitation																		
Tactile Disturbances																		
Auditory Disturbances																		
Visual Disturbances																		
Headache, Fullness in Head																		
Orientation/Clouding of Sensorium																		
Total Score																		
Respirations																		
Lorazepam dose (mg)																		
Initials																		

CLINICAL INSTITUTE WITHDRAWAL ASSESSMENT OF ALCOHOL SCALE, REVISED (CIWA-Ar)

NAUSEA & VOMITING
Ask " Do you feel sick to your stomach? Have you vomitted?" Observation.
0 No nausea & no vomiting
1 Mild nausea with no vomiting
4 Intermittent nausea with dry heaves
7 Constant nausea, frequent dry heaves and vomiting

TREMOR
Arms extended and fingers spread apart. Observation
0 No tremor
1 Not visible, but can be felt fingertip to fingertip
4 Moderate, with patient's arms extended
7 Severe, even with arms not extended

PAROXYSMAL SWEATS
Observation
0 No sweat visible
1 Barely perceptible sweating, palms moist
4 Beads of sweat obvious on forehead
7 Drenching sweats

ANXIETY Ask " Do you feel nervous?" Observation
0 No anxiety, at ease
1 Mild anxious
4 Moderately anxious, or guarded, so anxiety is inferred
7 Equivalent to acute panic states as seen in severe delirium or acute schizophrenic reactions

AGITATION Observation
0 Normal activity
1 Somewhat more than normal activity
3 Moderately fidgety and restless
7 Paces back and forth during most of the interview, or constantly thrashes about

TACTILE DISTURBANCES Ask " Have you any itching, pins and needles, burning, numbness or do you feel bugs crawling on or under your skin?"Observation
0 None
1 Very mild itching, pins & needles, burning or numbness
3 Moderate itching, pins & needles, burning or numbness
5 Severe hallucinations
7 Continuous hallucinations

AUDITORY DISBURBANCES 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
3 Moderate harshness or ability to frighten
5 Severe hallucinations
7 Continuous hallucinations

VISUAL DISTURBANCES Ask " Does the light appear to be to bright? Is its color different? Does it hurt your eyes? Are you seeing anything that is disturbing to you? Are you seeing things that you know are not there?" Observation
0 Not present
1 Very mild sensitivity
3 Moderate sensitivity
5 Severe hallucinations
7 Continuous hallucinations

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 No present
1 Very mild
3 Moderate
5 Severe
7 Extremely severe

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

Nurse's Signature/Status	Initials	Nurse's Signature/Status	Initials	Nurse's Signature/Status	Initials

Appendix D: Eastern Health's Client Surveillance Protocol

Eastern Health

CLIENT SURVEILLANCE (ACUTE/LONG TERM CARE) EXEMPTION: MENTAL HEALTH AND ADDICTIONS PROGRAM)	Safety 204(NUR)-2-020
Issuing Authority	**Tina Skinner, Regional Director (Acting), Professional Practice-Nursing** Signed by Tina Skinner Dated January 13, 2011
Office of Administrative Responsibility	Professional Practice Nursing
Author	Jacqueline Brockerville &Tamara Hickey Clinical Educators, Medicine Program. Lynette McCarthy-Woodrow, Regional Program Coordinator, Surgical Services.
Level	Three (111)
Original Approval Date	December 10, 2010
Effective Date	Upon signature
Scheduled Review Date	December 2013
Actual Review Date	
Revised Date(s)	December 21, 2010, January 13, 2011

Overview

Eastern Health considers safety a fundamental principle of client care. One mechanism to ensure client safety is routine surveillance.

In situations where the client requires more than routine surveillance a higher level of surveillance should be implemented. This policy is intended to assist the Registered Nurse (RN) or Licensed Practical Nurse (LPN) to determine the appropriate level of surveillance required to maintain client safety.

Exemption: **This policy does not apply to the Mental Health and Addictions Program: Please refer to program policies for specific direction on client surveillance**.

Eastern Health

POLICY

Eastern Health utilizes four types of surveillance:

- Routine Surveillance

All clients who are admitted are observed at least every hour. This is the minimum standard (routine) level of surveillance for all clients. Routine Surveillance is documented as part of the client's specific nursing intervention (i.e. Meditech).

- Close Surveillance

Clients on close surveillance are observed at least every 15 or 30 minutes.

- Cluster Surveillance

Cluster surveillance may be implemented on units that have multiple clients requiring close surveillance. One staff member is assigned to observe 2 to 4 clients who are on close surveillance and are cohorted in one room. A staff member does not need to have a direct visual view of the clients at all times (i.e. providing care to another client) but is required to be in the room at all times. Documentation on the surveillance record is not required for cluster surveillance.

- Constant Surveillance

One staff member is assigned to observe one client **(one-to-one observation)**. The client is in direct visual view of the assigned staff member or designate at all times.

Approval from a manager or designate is required prior to initiating constant care.

Exemption: All clients who present with the following risk factors must be placed on constant care **immediately** and initial approval from the manager or designate is not required:

- Admitted with suicidal risk unless otherwise ordered
- Requiring 4 or 5 point physical restraint or seclusion
- Admitted **involuntarily** under the Mental Health Care and Treatment Act (signed by one physician), until assessed by a second physician

All constant care is re-approved by the manager or designate at the beginning of every twelve hour shift. Re-approval by the manager or designate is not required for exemptions listed above.

Incarcerated clients:
When incarcerated clients are admitted to Eastern Health Her Majesty's Penitentiary (HMP) staff provide direct visual observation of the client at all times (Exception: Clients admitted to the Forensic Unit at the Waterford Hospital).

Individuals in Police Custody:

The level of surveillance provided by the Royal Newfoundland Constabulary (RNC) and the Royal Canadian Mounted Police (RCMP) will be individualized to the client based on their risk assessment. Hospital staff will discuss the level of surveillance with the policing agency.

For Incarcerated clients or Individuals in Police Custody:

The RN, LPN or designate provide close surveillance (15 to 30 minutes) regardless of the level of surveillance being employed by the custodial agency. (e.g. RCMP, RNC, HMP Staff)

Eastern Health staff are required to provide constant surveillance for incarcerated clients or clients in police custody if the client:

- requires a 4 or 5 point restraint

Scope

Applies to all RNs, LPN's, Personal Care Attendants (PCA's), Personal Observation Attendants (POA's) or other designates assigned responsibility for client surveillance in acute and long term care. **Exemption: The Mental Health and Addictions Program.**

Purpose

To enhance the safety of clients admitted to facilities in Eastern Health and to ensure safe work practices for employees involved in client surveillance.

Policy Details

1. The RN or LPN:
   - Can institute and discontinue close surveillance.
   - Can institute constant surveillance with approval from the manager or designate (Approval is not required for the exceptions listed on page 2)

- Can discontinue constant surveillance
- Will notify the physician of a change in a client's condition that required the increased level of surveillance and document this information in client's health record.

2. If a physician or Nurse Practitioner (NP) orders close or constant surveillance for a client, a physician or NP's' order is required to discontinue it. Approval or re-approval from a manager or designate is not required.

3. Acute Care Only:

   The RN or LPN assigned to the client maintains routine hourly surveillance when close or constant surveillance is being provided by a designate.

   Exemption: Routine hourly surveillance is not required when care of the client has been transferred to another health care provider for off unit activities or procedures.

4. LTC Only:
   - The RN or LPN assigned to the client maintains routine hourly surveillance when constant surveillance is being provided by a designate.
   - The assigned healthcare provider maintains routine hourly surveillance when close surveillance is being provided by a designate unless the residents' clinical condition warrants observation by professional nursing staff.

   Exemption: Routine hourly surveillance is not required when care of the client has been transferred to another health care provider for off unit activities or procedures.

5. The necessity for close or constant surveillance is re-assessed every 12 hours.

6. The RN, LPN or designate informs other healthcare team members of the level of surveillance (e.g., client requiring transport off the nursing unit).

7. Clients who have a high potential for suicide are observed by an individual with education on the care of the suicidal patient.

8. Family members:

   - may provide constant surveillance if the client's condition permits (as determined by professional nursing staff) and the family can state their understanding of their responsibilities. This discussion is documented in the client's health record.

- are **not** permitted to provide constant surveillance if the client is deemed at risk for suicide or intentional self-harm.

9. The health care provider assigned to the client provides close (at least every 30 minutes) surveillance when constant surveillance is being provided by a family member. Documentation of this surveillance is documented on the surveillance record.

10. It is recommended that staff be assigned to cluster or constant surveillance for a maximum of eight consecutive hours only.

11. The assignment record will indicate the individual performing cluster or constant surveillance and the individual responsible for break relief.

12. All Records of Surveillance and the Observed Behavior Checklists are:

    - to be kept in a private and confidential area while in use
    - filed as a permanent part of the client's health record.

13. The RN or LPN (or the PCA in Long Term Care) assigned to the client is responsible for the transfer of information to staff and/or family who are performing surveillance indicating:
    - their role in close or constant care
    - any special precautions to be taken
    - the reason for surveillance

14. Documentation includes:
    - initial assessment and level of surveillance utilized.
    - re-assessment every 12 hours.
    - completion of appropriate forms (e.g. record of surveillance, observed behavior checklist).
    - change to the level of surveillance

Procedure

CLOSE/CLUSTER SURVEILLANCE

Criteria for Initiation of Close/Cluster Surveillance

- low to moderate risk for self-harm
- at risk to fall as determined by the Fall Risk Assessment Tool
- restraints
- interfering with treatment (e.g. tampering with IV lines)
- risk for elopement (wandering)

- discontinuation of constant surveillance
- acute state of confusion

Staff Performing Close Surveillance:

- Complete the Record of Surveillance each time surveillance is performed. (**Exception:** Cluster Surveillance and Protective Care Units: Locked and Wanderguard Units).
- Accompany client on all off unit activities.

Staff Performing Cluster Surveillance:

- Complete the Observed Behavior Checklist hourly

CONSTANT SURVEILLANCE

Constant Surveillance can be initiated for any of the reasons indicated for close or cluster surveillance but it is automatically and immediately implemented for clients:

- Admitted with suicidal risk unless otherwise ordered
- Requiring 4 or 5 point physical restraint or seclusion
- Admitted **involuntarily** under the Mental Health Care and Treatment Act (signed by one physician), until assessed by a second physician.

Staff Performing Constant Surveillance:

- Complete the Observed Behavior Checklist hourly or more frequently as indicated by the client's condition
- Accompany client on all off unit activities.

Linkages

Meal Breaks and Rest Periods. HR-CB(b)-080
Safe Work Practices and Procedures. HR-OH(o)-260
Hand Hygiene Policy IPC-150
Routine Practices Policy IPC-190

Key Words

Routine Surveillance
Close Surveillance
Cluster Surveillance

Cohorting
Constant Surveillance
Incarcerated Clients
Surveillance

Definitions & Acronyms

Custodial Agency	Representatives and/or officers of a Correctional facility, an officer of an accredited police force and a sworn member of the Office of the High Sheriff. This may include agencies outside the jurisdiction of Newfoundland and Labrador.
Forensic Care Patients	Patients under care of Eastern Health by virtue of the Mental Health Care and Treatment Act (MHCTA); Ward North 4B of the Waterford Forensic Hospital is the designated facility for these patients, however they may be escorted to and from specialized EH treatment centers as required.
Incarcerated Client	Any person who is in jail or prison
LPN	Licensed Practical Nurse
PCA	Personal Care Attendant
POA	Patient Observation Attendant
RCMP	Royal Canadian Mounted Police
RN	Registered Nurse
RNC	Royal Newfoundland Constabulary

Policy History This policy replaces the following policies:

Legacy Board	Policy #	Policy Name	Date Revised
HCCSJ	Administration Manual # XV11-98	Patient Surveillance (standard, close and constant)	2003-04-23
AHCIB	C-2166	Constant/Close Observation Levels	1996-09
PHCC	General	Observation Levels-Close and Constant	2001-11

	Nursing Manual 1X- 570	Observation	

Key: HCCSJ – Health Care Corporation of St. John's
AHCIB – Avalon Health Care Institutions Board
PHCC – Peninsulas Health Care Corporation

Eastern Health

Observed Behaviour Checklist (Day Shift)
0800 - 1930 hours

Legend: Y - Yes N - No N/A - Not Applicable

Name

MCP #

Chart #

	08__	08__	09__	09__	10__	10__	11__	11__	12__	12__	13__	13__	14__	14__	15__	15__	16__	16__	17__	17__	18__	18__	19__	19__
Behaviour																								
Correctly identifies people																								
Aware of current surroundings																								
Follows simple commands																								
Uses objects appropriately																								
Cooperative																								
Refusing care																								
Reaching/grabbing at air																								
Seeing things not present																								
Restless																								
Attempting to get out of bed																								
Pulling at lines and tubes																								
Hitting/grabbing/kicking																								
Inappropriate dress/disrobing																								
Tearing/destroying property																								
Communication																								
Quiet																								
Mumbling																								
Argumentative																								
Shouting																								
Verbally abusive																								
Ambulation																								
Ambulating without problems																								
Unsteady walking																								
Pacing																								
Wanders																								
Sleeping																								
Lying down																								
Sitting																								
Other																								
Initials																								

Signature/Status	Initials	Signature/Status	Initials	Signature/Status	Initials	Signature/Status	Initials

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Eastern Health

RECORD OF SURVEILLANCE

Name:

MCP #

Chart #

Date: _____

Frequency: ☐ Q 15 mins ☐ Q 30 mins

Time	Initial	Time	Initial	Time	Initial	Time	Initial	Time	Initial	Time	Initial
08		10		12		14		16		18	
08		10		12		14		16		18	
08		10		12		14		16		18	
08		10		12		14		16		18	
09		11		13		15		17		19	
09		11		13		15		17		19	
09		11		13		15		17		19	
09		11		13		15		17		19	

Time	Initial	Time	Initial	Time	Initial	Time	Initial	Time	Initial	Time	Initial
20		22		24		02		04		06	
20		22		24		02		04		06	
20		22		24		02		04		06	
20		22		24		02		04		06	
21		23		01		03		05		07	
21		23		01		03		05		07	
21		23		01		03		05		07	
21		23		01		03		05		07	

Restraints ***must be*** released/assessed Q2H

Restraint Released/Assessed		
Time	Initial	Comments

Signature /Status	Initial	Signature /Status	Initial	Signature /Status	Initial

Appendix E: Low Risk Drinking Guidelines

Your limits

Reduce your long-term health risks by drinking no more than:

- 10 drinks a week for women, with no more than 2 drinks a day most days
- 15 drinks a week for men, with no more than 3 drinks a day most days

Plan non-drinking days every week to avoid developing a habit.

Special occasions

Reduce your risk of injury and harm by drinking no more than 3 drinks (for women) or 4 drinks (for men) on any single occasion.

Plan to drink in a safe environment. Stay within the weekly limits outlined above in ***Your limits***.

When zero's the limit

Do not drink when you are:

- driving a vehicle or using machinery and tools
- taking medicine or other drugs that interact with alcohol
- doing any kind of dangerous physical activity
- living with mental or physical health problems
- living with alcohol dependence
- pregnant or planning to be pregnant
- responsible for the safety of others
- making important decisions

Pregnant? Zero is safest

If you are pregnant or planning to become pregnant, or about to breastfeed, the safest choice is to drink no alcohol at all.

Delay your drinking

Alcohol can harm the way the body and brain develop. Teens should speak with their parents about drinking. If they choose to drink, they should do so under parental guidance; never more than 1–2 drinks at a time, and never more than 1–2 times per week. They should plan ahead, follow local alcohol laws and consider the ***Safer drinking tips*** listed in this brochure.

Youth in their late teens to age 24 years should never exceed the daily and weekly limits outlined in ***Your limits***.

Safer drinking tips

- Set limits for yourself and stick to them.
- Drink slowly. Have no more than 2 drinks in any 3 hours.
- For every drink of alcohol, have one non-alcoholic drink.
- Eat before and while you are drinking.
- Always consider your age, body weight and health problems that might suggest lower limits.
- While drinking may provide health benefits for certain groups of people, do not start to drink or increase your drinking for health benefits.

CCSA wishes to thank the partners who supported development of Canada's Low-Risk Alcohol Drinking Guidelines. For a complete list of the organizations supporting the guidelines, please visit www.ccsa.ca/Eng/topics/alcohol/drinking-guidelines/Pages/Supporters-LRDG.aspx

Canada's Low-Risk Alcohol Drinking Guidelines

Visit our website to find out more!

www.ccsa.ca

Reference:
Butt, P., Beirness, D., Gliksman, L., Paradis, C., & Stockwell, T. (2011). *Alcohol and health in Canada: A summary of evidence and guidelines for low-risk drinking.* Ottawa, ON: Canadian Centre on Substance Use and Addiction.

Drinking is a personal choice. If you choose to drink, these guidelines can help you decide when, where, why and how.

Low-risk drinking helps to promote a culture of moderation.

Low-risk drinking supports healthy lifestyles.

The Canadian Centre on Substance Use and Addiction changes lives by bringing people and knowledge together to reduce the harm of alcohol and other drugs on society. We partner with public, private and non-governmental organizations to improve the health and safety of Canadians.

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Evidence. Engagement. Impact.