Abstract

Screening is the first step in identifying and treating alcohol-related problems among the senior population. This study was designed with two purposes. The first was to cross-validate the Senior Alcohol Misuse Indicator (SAMI) with two commonly used screening tools - the CAGE and the Shortened Michigan Alcoholism Screening Test – Geriatric version (SMAST-G). The second purpose was to examine the feasibility of using these tools within a front-line health care worker’s clinical protocol. The effectiveness of each screening tool was assessed by calculating the sensitivity, specificity, and the area under the receiver operating characteristic (AUROC) for each screening tool with a sample of seniors recruited from clinical and community sources (N=87). Participants were classified into different types of drinker with a structured clinical interview (i.e., the Structured Clinical Interview for the DSM-IV and a medical history, including medication list). Seven problem drinkers, 36 at-risk drinkers, 25 non-problem drinkers, and 19 non-drinkers were identified. Among the three screening tools, the SAMI had the highest sensitivity (83.72%) in identifying at-risk drinkers and problems drinkers and best overall performance with the greatest AUROC (0.710), whereas the SMAST-G had the highest specificity (95.45%) in ruling out an alcohol-related problem among participants classified as non-problem drinkers and non-drinkers. Six outreach mental health care workers tested each screening tool at least three times with their senior clientele and rated each tool on a number of characteristics. An ANOVA and post-hoc analyses using the Least Significant Difference (LSD) compared these ratings among the three screening tools. The SMAST-G and CAGE were cited as the easiest to score (p=0.002), while the SMAST-G was cited as the screening tool providing the most clinical information (p=0.047) and the most comprehensive (p=0.019) of the three tools. These results point to the overall effectiveness of the SAMI and the user-friendliness of the SMAST-G as appropriate screening tools for identifying alcohol-related problems among the senior population. Future studies may further examine these two screening tools among as-yet-
untested clinical populations (i.e., geriatric mental health outreach patients, cognitively impaired, collateral informants) and how to improve screening tool usage among health care providers.
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<td>Analysis of Variance</td>
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<td>AUD:</td>
<td>Alcohol Use Disorder</td>
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<td>AUROC:</td>
<td>Area Under the Receiver Operating Characteristic</td>
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<td>DSM-IV:</td>
<td>Diagnostic and Statistical Manual of Mental Disorders – Fourth edition</td>
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<td>ER:</td>
<td>Emergency Room</td>
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<td>GI:</td>
<td>Gastro-intestinal</td>
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<td>LSD:</td>
<td>Least Significant Difference</td>
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<td>Michigan Alcoholism Screening Test</td>
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<td>MAST-G:</td>
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<td>MCV:</td>
<td>Mean Corpuscular Volume</td>
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<td>MMSE:</td>
<td>Mini-Mental Status Examination</td>
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<td>NSAID:</td>
<td>Non-Steroidal Anti-inflammatory Drug</td>
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<td>REB:</td>
<td>Research Ethics Board</td>
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<td>ROC:</td>
<td>Receiver Operating Characteristic</td>
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<td>Substance Abuse and Mental Health Services Administration</td>
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<td>SCID:</td>
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<td>Standard Deviation</td>
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<td>TIP:</td>
<td>Treatment Improvement Protocol</td>
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<td>U.K.:</td>
<td>United Kingdom</td>
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<td>U.S.:</td>
<td>United States</td>
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<td>λGT:</td>
<td>glutamyl-transpeptidase</td>
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Chapter 1

Introduction and Literature Review

Aging

Canada’s population is growing older. As the baby boomer generation ages, the demographic of seniors will accelerate drastically in size until all of the baby boomers turn 65 (Ramage-Morin, Shields, & Martel, 2010; Statistics Canada, 2008). In 2009, a record 13% of the population (4.9 million individuals) was over the age of 65 and this proportion is expected to more than double by the year 2036, when the number of seniors is projected to reach between 9.9 and 10.9 million, representing 23% to 25% of the population (Statistics Canada, 2011; Statistics Canada, 2010). By the middle of the 2010 decade, the proportion of senior citizens might surpass the proportion of children for the first time in Canadian history (Statistics Canada, 2008).

Seniors, as a group, can be divided into three separate age categories that reflect the heterogeneity of life experiences and situations: young-old from 65 to 74 years of age; mid-old from 75 to 84 years of age, and old-old from 85 years of age and older (Turcotte & Schellenberg, 2007). Based on predictions of life expectancy from 2005 onwards, the proportion of the young-old group in the Canadian population is expected to almost double by 2031 (from 6.9% to approximately 12.4%). The mid-old group will undergo a similar growth rate by 2041 (from 4.6% to 9.7%), and the old-old group will experience the greatest increases in growth, more than tripling by 2056 (from 1.5% to 5.8%) (Turcotte & Schellenberg, 2007). With such an accelerating growth of Canadian seniors, the demand for health care and home care (along with associated costs) will undoubtedly increase. As such, interventions that prevent, delay, or, at the very least, reduce the
severity of health-related illnesses will increase seniors’ quality of life, partly by maximizing the possibility that they can continue to live at home (Martel, Bélanger, Berthelot, & Carrière, 2005).

**Drinking Definitions and Guidelines**

One health-related issue that could benefit from early identification and intervention in seniors is alcohol abuse. In North America, a standard drink contains 13.6 grams of alcohol, which is equivalent to 12 ounces of beer or cooler (5% alcohol), 5 ounces of table wine (12% alcohol), or 1.5 ounces of spirits (40% alcohol). The Dietary Guidelines for Americans suggest that moderate drinking is defined as no more than one drink per day for women and no more than two drinks per day for men to promote health and prevent disease (Dufour, 1999). Recommended low-risk drinking guidelines in Canada suggest no more than 2 standard drinks per day for women (maximum of 10 drinks weekly) and no more than 3 standard drinks per day for men (maximum 15 drinks weekly). These guidelines have been developed for the general population, but should be reconsidered for three distinct types of risk from drinking: situations and individual circumstances that are particularly hazardous (e.g., pregnant women, teenagers, contraindicated medications), development of serious disease from long-term consumption (e.g., liver disease, specific cancers), and short-term risk of injury or acute illness due to overconsumption of alcohol in one sitting (Butt, Beirness, Gliksman, Paradis, & Stockwell, 2011). Because seniors can easily fall into the former two risk groups and because of the physiological changes that occur with aging, numerous researchers have called for decreasing the recommended limits for older adults to a maximum of one standard drink per day for both sexes (Chermack, Blow, Hill, & Mudd, 1996; Dufour, Archer, & Gordis, 1992; Dufour & Fuller, 1995).
Special Considerations for Alcohol Use in Seniors

Physiological changes that occur with aging affect the rate of absorption as well as the elimination of alcohol. These changes are due, partly, to decreases in lean body mass and increases in adipose tissue, resulting in an overall decrease in the total volume of body water (Vestal, McGuire, Tobin, Andres, Norris, & Mezey, 1977). Metabolism of alcohol is also slowed down in older individuals, with decreased flow of blood to the liver and reduced efficacy of excretory functions of the kidney (Lamy, 1987). One component of alcohol metabolism, degradation, is facilitated by an enzyme in the stomach, alcohol dehydrogenase. Alcohol dehydrogenase activity is higher in men than women (hence, higher drinking limits for men), but activity is reduced in both sexes with advancing age (although more predominantly in men) (Pozzato, Moretti, Franzin, Crocè, Lacchin, Benedetti, Sablich, Stebel, & Campanacci, 1995). This eliminates the male advantage in adulthood of faster alcohol metabolism as early as age 50 (Moreno, Parés, Ortiz, Enríquez, & Parés, 1994; Seitz, Egerer, Simanowski, Waldherr, Eckey, Agarwal, Goedde, von Wartburg, 1993). Taken together, these age-related physiological changes lead to a smaller volume of distribution, a higher blood alcohol level, and an extended period of alcohol in the body of an older individual compared to a younger person consuming the same amount of alcohol.

The combined use of alcohol and prescription drugs is a concern for all individuals, but is more likely to occur in seniors because up to 90% of this population have taken at least one prescription medication in the past year (Statistics Canada, 2006; Chrischilles, Foley, Wallace, Lemke, Semla, Hanlon, Glynn, Ostfield, & Guralnik, 1992). Among senior drinkers, upwards of 87% take at least one prescription medication (Aira, Hartikainen, & Sulkava, 2005). Moreover, between 19-38% of older adults consume alcohol while taking a high-risk medication, defined as...
a drug that has an increased potential for adverse interactions with alcohol (Adams, 2005; Pringle, Ahern, Heller, Gold, & Brown, 2005). Within this group of older adults, those that are younger, male, and with higher educational attainment were the most likely to be consuming alcohol while taking high-risk medications (Pringle et al., 2005).

Alcohol can alter the activity and function of medications commonly prescribed to seniors in a variety of ways. First, alcohol may affect the metabolism and/or activity of the drug, resulting in the exacerbation of the drug’s activity or side effects. For example, acute alcohol ingestion enhances the sedative effects of certain antidepressants, barbiturates, antihistamines, muscle relaxants, benzodiazepines, hypnotics, and opioid analgesics, which may lead to increased risk of falls, difficulty breathing, and loss of consciousness or even death (Gerbino, 1982; Weathermon & Crabb, 1999). Second, alcohol may have different short- and long-term effects on drug metabolism. In this case, acute alcohol administration alters the effects of the common blood thinner, warfarin, by increasing anticoagulation (thereby decreasing warfarin metabolism). In contrast, chronic alcohol use decreases anticoagulation, thus increasing the metabolism of warfarin (Weathermon & Crabb, 1999).

Drug-alcohol interactions may be reversed in that some medications can impair the metabolism of alcohol. This results in disulfiram-like reactions (i.e., flushing, nausea, vomiting, sweating) following alcohol consumption when individuals are using certain non-steroidal anti-inflammatory drugs (NSAIDs), antibiotics, cardiovascular medications (nitrates), or diabetes medications (sulfonylureas) (Weathermon & Crabb, 1999). Common over-the-counter medications can also reduce alcohol metabolism, leading to faster alcohol absorption and higher blood alcohol levels (e.g., analgesics, histamine H₂ receptor antagonists for ulcers/heartburn).
There is also a danger of increased gastric bleeding with alcohol and NSAID use (Weathermon & Crabb, 1999).

**Drinking Statistics**

Statistics Canada tracks two types of drinkers among the Canadian population: current drinkers and regular drinkers. Across the lifespan, the prevalence of current drinkers (i.e., individuals who have reportedly consumed at least one drink in the past year) generally decreases with increasing age (see Figure 1). In 2004, 70% of the youngest-old group of seniors reportedly consumed at least 1 drink in the past year, whereas the prevalence of current drinkers in the mid-old and oldest-old groups of seniors was slightly lower at 64.4% (Health Canada, 2006). This group of current drinkers is not likely to be clinically significant in terms of problem drinking.

![Prevalence of Canadian Current Drinkers in 2004](image)

**Figure 1.** The prevalence of Canadian current drinkers. Adapted from the Canadian Addiction Survey (Health Canada, 2006).
Compared to earlier figures, regular alcohol consumption (i.e., having reportedly consumed at least one drink in the past month) is more common among seniors, especially among those over the age of 75 (Turcotte & Schellenberg, 2006). The prevalence of regular drinkers in the mid-old and the oldest-old groups of seniors has reportedly increased from 31.5% in 1994 to 41.9% in 2003. Moreover, among current drinkers, although the prevalence of individuals that reportedly consume 1-3 drinks per week reportedly decreases with increasing age, the prevalence of the highest frequency drinkers (4 or more drink per week) reportedly increases across the lifespan (Health Canada, 2006) (Figure 2). Daily drinking also tends to increase with age, with more than 15% of senior Ontarians reporting daily alcohol consumption (Ialomiteanu, Adlaf, Mann, & Rehm, 2011) (Figure 3).

![Prevalence of Canadian Current Drinkers, by Frequency of Drink and Age](image_url)

Figure 2. The frequency of drinking in Canadian current drinkers. Adapted from the Canadian Addiction Survey (Health Canada, 2006). mth= month; wk= week.
On a typical drinking day, over 85% of older Canadians report consuming one to two standard drinks, although 10-12% of those over the age of 65 report consuming 3-4 drinks per day and approximately 2.3-2.4% of seniors report consuming five or more drinks per drinking day (Health Canada, 2006). Increasingly, seniors identify wine as their preferred alcoholic drink (Zhang, Guo, Saitz, Levy, Sartini, Niu, & Ellison, 2008).

**Alcohol Use Disorders (AUDs)**

Alcohol use disorders (AUDs) are defined by the Diagnostic and Statistical Manual of Mental Disorders – Fourth edition (Text Revision) (DSM-IV) using specific criteria as determined by a task force of psychiatrists, psychologists, and clinicians, and researchers (American Psychiatric Association, 2000). Alcohol abuse is diagnosed if an individual reports
recurrent alcohol use resulting in repeated problems during a twelve-month period in at least one of the four following areas: a failure of major obligations at work, home, or school; using alcohol in physically hazardous situations; the experience of recurrent alcohol-related legal problems; or alcohol use leading to documented impairment in one’s occupational or social functioning. The diagnosis of alcohol dependence requires the individual to report experiencing at least three of the following seven criteria over a twelve-month period: use of alcohol in larger amounts or over a longer period of time than was intended; a persistent desire to drink or unsuccessful attempts to reduce or control usage; excessive time spent obtaining, using, or recovering from the effects of alcohol; disruption in important social, occupational, or recreational activities because of alcohol use; continued ingestion despite knowledge that a physical or psychological problem is caused or exacerbated by alcohol; marked tolerance (i.e., increase in dosage to achieve similar effects or markedly diminished effect with usage of same amount); or characteristic withdrawal symptoms.

The lifetime prevalence of alcohol use disorders in the general population (i.e., alcohol abuse and dependence) is estimated to be 17.8% and current prevalence at less than 5% (Hasin, Stinson, Ogburn, & Grant, 2007). Lower rates are found among older adults, with lifetime and current prevalence at 16.1% and 1.5%, respectively (Lin, Mitchell, Grella, Warda, Liao, Hu, & Moore, 2011).

**Issues with Alcohol Use Disorders and Seniors**

Many of the DSM-IV criteria for AUDs are observed in younger populations and are not applicable to older persons (Hartford & Samorajski, 1982). These diagnostic criteria may under-diagnose and under-detect older problem drinkers because many exceptions exist for the senior population. For example, absence from work is less likely to be experienced by older adults because they are more likely to be retired, work part-time, or be self-employed. Moreover, since
vision and reaction times decline with age and seniors are more likely to drink in their home, arrests for driving under the influence of alcohol, public intoxication, or drunken altercations are less likely to be reported (Berks & McCormick, 2008). Interpersonal difficulties or family problems may not be evident in older alcoholics as they may live alone, be widowed, and their adult children have often moved out of the family home. Moreover, social isolation (e.g., giving up activities due to use) is not an appropriate sign for problem drinking, with a higher probability of widowhood and older adults meeting this criterion compared to younger populations (Gaitz & Baer, 1971). Since even small amounts of alcohol can have adverse effects on an older person, tolerance and spending much time to obtain, use, or recover from alcohol may not apply. Seniors may also continue their alcohol use despite physical or psychological problems caused by use because they may not realize that the problems are related to their use, even after medical advice. For example, there is not a lower prevalence of alcohol consumption among seniors taking contraindicated medications compared to those who do not take such medication (Jalbert & Lapane, 2008).

Given the concerns in the classification of alcohol use disorders among older adults, the term “alcohol-related problems” will be used to define any alcohol consumption that places an individual at risk for negative health consequences and will include AUDs, heavy drinking, problem drinking, and at-risk drinking.

Alcohol-related Problems

Alcohol consumption can be described as a continuum, with one end representing a diagnosis of alcohol dependence and the other end representing low-risk drinking (e.g., occasional, light, or moderate drinkers). In between these two extremes lies a grey area where alcohol-related problems can occur without the diagnosis of an AUD and with consumption of
amounts of alcohol that would be considered small by normal standards. Whereas AUDs have a low prevalence in older age, alcohol-related problems are a more common issue among the senior population.

The World Health Organization (WHO) recognized the need to identify excessive drinkers that do not meet DSM-IV criteria for alcohol dependence and coined the term “harmful drinker” to describe any alcohol consumption that leads to physical, psychiatric and even social consequences or harms (Babor, Campbell, Room & Saunders, 1994). Heavy drinking has also been a term used to describe a high-quantity pattern of drinking that may be infrequent (i.e., binge drinking) or does not meet criteria to be diagnosed as an AUD, but is considered excessive and places the drinker at an elevated risk for negative consequences, although the specific definitions may vary. For example, although one Canadian study defined heavy drinking as consuming five or more drinks on one occasion at least once a month in the past twelve months (Turcotte & Schellenberg, 2006), others have specified a minimum of four drinks (Health Canada, 2006) or three drinks per occasion (Zhang et al., 2008) as heavy drinking. As is the case with alcohol consumption, Canadian seniors are reportedly less likely than people in younger age groups to be heavy drinkers (less than 10%) (Health Canada, 2006; Turcotte & Schellenberg, 2006) (Figure 4).
Figure 4. Frequency of drinking by Canadian heavy drinkers. Adapted from the Canadian Addiction Survey (Health Canada, 2006).

The WHO also recognizes a pattern of alcohol consumption that increases the risk of harmful consequences to the drinker and those around the drinker, although the drinker may not be currently experiencing difficulties (Babor, Campbell, Room & Saunders, 1994). This type of drinker is defined as a “hazardous” or “at-risk” and describes a type of drinking that places an individual at-risk for negative consequences, although they may not be experiencing any negative consequences at the present time. Even moderate levels of alcohol consumption (e.g., 1-2 drinks on most days) may lead to an increased risk for negative health consequences among older adults (Klatsky, 2007; Moore, Giuli, Gould, Hu, Zhou, Reuben, Greendale, & Karlamangla, 2006; Fink et al., 1996). Eight percent of older adults reportedly participated in at-risk drinking defined
solely based on quantity and frequency of drinking (i.e., 7+ drinks per week, 5+ drinks per
drinking day, or 3+ drinks per day several times a week) (Immonen, Valvanne, & Pitkala, 2011).

It has been suggested that the WHO definition for hazardous drinking was developed for
the general population and does not take into consideration that alcohol-related problems may
present differently in later years. More specifically, elderly individuals may be more susceptible
to falls, depression, sleep disorders, gastritis, and/or functional decline rather than
familial/occupational/legal problems (Fink, Hays, Moore & Beck, 1996). For instance, a more
refined definition of at-risk or hazardous drinking could incorporate alcohol use with the presence
of high-risk co-morbidities and medication use or based on excessive alcohol use alone that often
exists with seniors. When this more specific definition of at-risk drinking is used, the prevalence
of at-risk drinking jumps to almost 35% when a more refined definition is used, (Barnes, More,
Xu, Ang, Tallen, Mirkin, & Ettner, 2010).

**Symptoms of Alcohol-related Problems**

Alcohol-related problems may present differently as individuals age. Because of this,
symptoms may be difficult to distinguish from those of other chronic illnesses that are common in
seniors and from adverse reactions or side effects to medications. Because of natural
physiological changes, low levels of alcohol consumption can lead older adults to suffer from
negative health effects, such as depression, cognitive decline (i.e., difficulties with memory),
falls, and gastrointestinal (GI) disturbances (Dufour, Archer, & Gordis, 1992). These symptoms
may be easily discounted by health care providers as part of the “normal” aging process, and
therefore are not usually attributed to an alcohol-related problem (King, Van Hassalt, Segal, &
Hersen, 1994).
Other medical problems that might suggest alcohol-related problems, but again may be considered normal in the senior population, include trauma leading to emergency room visits (such as fractures and GI problems), hypertension, peripheral neuropathy, late-onset seizure disorder, confusion, incontinence, diarrhea, myopathy, congestive heart failure, non adherence to medical appointments and treatment, poor nutrition, insomnia, loss of libido, deficits in self-care, and estrangement from family and friends (Dufour & Fuller, 1995; American Medical Association Council on Scientific Affairs, 1996; Adams, Magruder-Habib, Trued, & Broome, 1992). Hypertension, which is common in older populations, has also been suggested as a sign of a drinking problem among seniors (Beresford, Blow, & Brower, 1990). Importantly, alcohol consumption increases systolic blood pressure and the risk of hypertension (Chen, Smith, Harbord & Lewis, 2008).

Health Harms

Acute alcohol ingestion in older adults leads to cognitive impairment, increased cardiac rate and output, elevated blood pressure, acute gastritis, acute pancreatitis, hypothermia, hypoglycemia, and inhibition of antidiuretic hormone, leading to dehydration (Gambert, 1997). Chronic excessive alcohol consumption can lead to an increased risk of an impaired immune system, hypertension, cardiac arrhythmia, myocardial infarction, cardiomyopathy, stroke, blood disorders, esophageal and other cancers, cirrhosis and other liver disease, insomnia, sexual dysfunction, and malnutrition (Gambert, 1997; Hartford & Samorajski, 1982; Smith, 1995). Heavier drinking (quantity of alcohol consumed per occasion and total volume of alcohol consumed) is associated with poorer self-rated health (Graham & Schmidt, 1998). There is a high rate of hospitalizations for alcohol-related problems among seniors (Adams, Yuan, Barboriak, &
Rimm, 1993) with 50% of admissions due to falls in older patients with a diagnosis of alcohol dependence or abuse (Mulinga, 1999).

The relationship between alcohol use and all-cause mortality in adults is generally U- or J-shaped, with abstainers and heavy drinkers having higher mortality rates than light-to-moderate drinkers (White, 1999; Klatsky, Armstrong, & Friedman, 1992; Rehm & Sempos, 1995; Poikolainen, 1995; Rehm, 2000). Alcohol use disorders among older adults are associated with an over 50% additional risk of mortality compared to no diagnosis of alcohol abuse (Mattisson, Bogren, Öjehagen, Nordström, & Horstmann, 2011; Thomas & Rockwood, 2001). Heavy drinking has been correlated with an increased risk of death (Jeong, Kim, Lee, Lee, Park, Huh, Chin, Jhoo, Lee, Woo, & Kim, 2012; Halmes, Seppä, Alho, Poikolainen, Pirkola, & Aalto, 2010), although one of these studies only found this effect among men, likely due to the small sample size of female drinkers (Halme et al., 2010). At-risk drinking is also significantly associated with a 20% higher mortality rate in the elderly, but only in men, again likely due to the smaller sample size of female at-risk drinkers (Moore, Giuli, Gould, Hu, Zhou, Reuben, Greendale, & Karlamangla, 2006).

There is a similar dose-dependent relationship between alcohol consumption and the risk of cognitive impairment. Chronic pathological drinking and poor nutritional state can lead to Wernicke-Korsakoff syndrome or alcoholic dementia (Beresford, 1993). Seniors diagnosed with questionable or diagnosed alcohol abuse are more often diagnosed with dementia (Thomas & Rockwood, 2001), while binge drinking in mid-life is also associated with an increased risk of cognitive impairment 20 years later (Virta, Järvenpää, Heikkilä, Perola, Koskenvuo, Räihä, Rinne, & Kaprio, 2010). One study has suggested that the cognitive impairment developed in elderly alcoholics may be reversed with as little as six months abstinence (Fein & McGillivray,
Although moderate levels of alcohol have been shown to be protective against mild cognitive impairment and dementia, authors have suggested that this may be a function of the poorer health status of abstainers or because cognitive status may influence overall alcohol consumption and health status (Solfrizzi, D’Introno, Colacicco, Capurso, Gagliardi, Santamato, Baldassarre, Capurso, & Panza, 2007).

Excessive alcohol use is associated with poorer physical health. Older adults living in the community with mental illness or substance use disorders have substantially greater medical co-morbidity than those without these diagnoses (Lin, Zhang, Leung, & Clark, 2011). Harmful, hazardous, and at-risk drinkers are more likely than social drinkers to engage in adverse health-related behaviours and practices, such as smoking, not wearing seatbelts, and avoiding vaccinations (Moore, Morgenstern, Harawa, Fielding, Higa, & Beck, 2001). Consumption of more than three drinks per occasion is associated with impairments in the performance of instrumental activities of daily living (Moore, Endo, & Carter, 2003). On the other hand, abstainers (including individuals who avoid alcohol due to health problems) report the poorest overall physical functioning, whereas older adults who drink in moderation (i.e., less than eight drinks a week for women, less than 12 drinks a week for men) report the best health functioning (Blow, Walton, Lawton Barry, Coyne, Mudd, & Copeland, 2000). It has been suggested that lifestyle-related characteristics mainly account for the association between moderate alcohol use and functional decline over time (Maraldi, Harris, Newman, Kritchevsky, Pahor, Koster, Satterfield, Ayonayon, Fellin, & Volpato, 2009).

Older problem drinkers are more likely than non-problem drinkers to report more severe pain, more disruption of daily activities due to pain, and more frequent use of alcohol to manage pain (Brennan, Schutte, & Moos, 2005). Men with painful medical conditions are more likely to
report more frequent drinking problems, whereas being older and having more interpersonal social resources moderates the risk of painful medical conditions on drinking problems, with a decline in frequency of alcohol consumption over time (Brennan, Schutte, Soohoo, & Moos, 2011). Even late-middle-aged individuals, especially men, with numerous painful medical conditions who reduce their alcohol consumption are still at risk for frequent drinking problems (Brennan et al., 2011).

**Screening for Alcohol-related Problems**

*Screening* is the exercise of making a probability estimate that a given individual has a specific condition obtained from brief questioning. In contrast, making a *diagnosis* requires a full and complete assessment (which is, often, lengthy) to determine whether a given individual has a specific condition. *Sensitivity* refers to the accuracy of a test in identifying an individual with a particular problem. *Specificity* refers to a test’s accuracy in identifying persons who do not have a problem.

A Treatment Improvement Protocol (TIP) was developed specifically to outline clinical best practices on substance use among older adults by the Center for Substance Abuse Treatment, Substance Abuse and Mental Health Services Administration (SAMHSA), a division within the U.S. Department of health and Human Services. The TIP recommends using the terms “at-risk” (a pattern of use that does not yet cause problems, but may bring about a risk of adverse consequences) and “problem” (a more hazardous level of consumption compared to “at-risk” which brings about clear physical and psychological problems) to describe two distinct groups of drinkers (Center for Substance Abuse Treatment, 1998). This terminology will be utilized for this research.
Best practices state that the best approach to screening for alcohol-related problems among older adults should be nonthreatening and nonjudgmental, due to the fact that older adults are more likely to be acutely sensitive to the stigma associated with mental illness and addictions (American Psychological Association, 1998; Center for Substance Abuse Treatment, 1998). APA further suggests that clinicians be wary of eliciting shame or embarrassment in the process of psychological interventions (APA, 1998). This issue is less prevalent among younger and middle-aged adults currently living in a very permissive culture of drinking and, perhaps to some extent, with the currently aging group of Baby Boomers. Conversely, most of the older cohorts of seniors have lived in an era following Prohibition with strong family attitudes against alcohol, a reluctance to openly discuss personal problems (airing “dirty laundry”), and may see alcohol-related problems as a sign of “character” or “moral” weakness. This type of stigmatized attitude may be more likely to occur with problem drinkers (i.e. those with heavy drinking patterns) rather than at-risk or non-risk drinkers (Babor & Higgins-Biddle, 2001). Despite this, it is recommended that clinicians avoid such stigmatizing terms such as “alcoholic” when working with an older drinker (Center for Substance Abuse Treatment, 1998).

It is also recommended that prefacing questions around consuming alcohol be linked to a medical condition or the senior’s physical health to make the discussion more comfortable, as older adults are used to discussing physical concerns with their health care providers (Center for Substance Abuse Treatment, 1998). Lastly, components of active listening (including observing nonverbal behaviour, listening to and understanding the senior’s verbal communication, listening to content in the context of the senior’s life, and attending to things the senior says that may have to be challenged) and a non-confrontational and supportive interview style, such as motivational
interviewing, are encouraged to elicit more truthful clinical information (Center for Substance Abuse Treatment, 1998).

**Common Problems of Assessment Tools with Seniors**

Graham (1986) identified five fundamental areas in current screening instruments for alcohol problems, but these were developed for young populations and may not be sensitive to problems in older individuals. These are: questions on quantity and frequency of drink (requiring mental calculations and intact memory in a population where cognitive impairment may be an issue); the use of occupational and legal problems as criteria for an alcohol problem (may not be experienced by older adults because they are isolated, living alone, retired or on disability, drink at home, and/or not driving); differential presentation of alcohol problems in seniors (more likely to present with social or health consequences, even at low levels of alcohol intake); failure to recognize that common symptoms in old age may also be related to alcohol misuse; the requirement of self-recognition of a problem (questions assume that the respondent is already aware there that he/she has a problem, despite the stigma and shame from social or cultural values more likely placed among seniors). Although not all seniors will have difficulty with all five areas as identified by Graham (1986), an effective alcohol assessment should be attractive to health care workers even in busy settings and be able to engage any senior client in a conversation to determine whether the senior respondent could be suffering from alcohol-related problems.

**Alcohol Use Disorders Identification Test (AUDIT)**

Based on the definitions used by the World Health Organization, Babor and colleagues developed the Alcohol Use Disorders Identification Test (AUDIT) from a six-country WHO collaborative project to screen for hazardous and harmful alcohol consumption (Saunders, Aasland, Babor, de la Fuente & Grant, 1993). The AUDIT focuses on quantifying the amount of
alcohol consumed in the past month as well as negative alcohol-related consequences, including symptoms of alcohol dependence (i.e. impaired control over drinking, increased salience of drinking, morning drinking), and harmful alcohol use (i.e. guilt after drinking, black-outs, others concerned about drinking) over the past year (Babor, Higgins-Bindle, Saunders & Monteiro, 2001). The AUDIT is insensitive for the older adult population, although specificity is generally good (Moore, Beck, Babor, Hays & Reuben, 2002; O’Connell, Chin, Hamilton, Cunningham, Walsh, Coakley, & Lawlor, 2004). The AUDIT also suffers from a number of downfalls that make the tool less senior-friendly (Graham, 1986), such as not assessing the differential presentation of alcohol-related problems among older adults. Another problem is that the tool relies on intact memory and the respondent’s ability to do mental calculations to convert their pattern of drinking in terms of standard drinks.

**Alcohol-related Problems Survey (ARPS)**

In response to the need for more specific definitions of hazardous and harmful drinkers as they are manifested in older age, Moore and colleagues (1999) convened an expert panel to develop senior-specific clinical indications of harmful, hazardous, and non-hazardous drinkers (Moore, Morton, Beck, Hays, Oishi, Partridge, Genovese & Fink, 1999). Panelists unanimously agreed that quantity and frequency of alcohol use was not sufficient in describing harmful drinking in a senior population. They further suggested that clinical indicators of these categories should incorporate the identification of particular medical/psychiatry conditions/symptoms, behaviours (i.e. drinking and driving), and medications that add risk to the older drinker (Moore et al., 1999).

From these clinical indications, the Alcohol-related Problems Survey (ARPS) was developed with the aim to identify older adults at risk for (i.e. hazardous) or experiencing (i.e. harmful) alcohol-related problems.
harmful) problems due to their use of alcohol alone or in conjunction with other medical conditions, medication use, or functional status (Fink, Morton, Beck, Hays, Spritzer, Oishi & Moore, 2002). The format is similar to the AUDIT with the same consumption and frequency questions, but becomes more useful for use with seniors due to the inclusion of a list of physical/psychiatric conditions/symptoms, medications, and behaviours that increase the risk of negative consequences combined with alcohol. The ARPS and the shortened-version of the ARPS (shARPS) have sensitivity and specificity of 93% and 63%, and 92% and 51%, respectively (Moore et al., 2002). Despite its excellent performance measures, both tools are lengthy (i.e. taking up to 10 minutes to complete). They also require intact memory for events from the past year, rely on information that may not be readily available (i.e. medical conditions, medications), and use a computer program to analyze the results which is only available, currently, for research purposes (Berks & McCormick, 2008).

Given the issues outlined above (i.e. emphasis on mental calculation, remote memory, information that is not readily available, and unavailability for clinical usage), neither the ARPS or shARPS were considered to be included in this research.

CAGE (Appendix G)

The CAGE is a four-item questionnaire that is the most widely used and studied standard screening test for alcoholism (O’Connell et al., 2004). The questionnaire explores thoughts about reduction in consumption, guilt about drinking behaviour, annoyance with others, and early morning drinking. It also assesses lifetime prevalence of alcoholism. A cut-off score of one is recommended for older adults in contrast to two in the younger population (Buchsbaum, Buchanan, Welsh, Centor, & Schnoll, 1992; Ewing, 1984).
Although some studies have found the CAGE to perform well with seniors (Buchsbaum et al., 1992), others have found issues with its use. The CAGE examines lifetime prevalence of drinking disorders, and so does not distinguish active from inactive drinkers in an outpatient urban setting (Buchsbaum et al., 1992). Although some studies have found the CAGE to be useful for older adults 50 years of age or more (Morton, Jones, & Manganaro, 1996; Joseph, Ganzini, & Atkinson, 1995; Jones, Lindsey, Yount, Soltys, & Farani-Enayat, 1993), some have found the CAGE to have a low detection rate of alcohol abusers 60 years and older in a community setting as compared to the clinical setting (Cherpitel, 1998; Livingston & King, 1993). Some have found the sensitivity of this tool too low to be useful (Mangion, Platt, & Syam, 1992; Malet, Brousse, & Llorca, 2009; Philpot, Pearson, Petratou, Dayanandan, Silverman, & Marshall, 2003; Fink, Tsai, Hays, Moore, Morton, Spritzer, & Beck, 2002; Naik, Jones, & Lilley, 1995), or suggest a modified version of the CAGE omitting the first question (Hinkin, Castellon, Dickson-Fuhrman, Daum, Jaffe, & Jarvik, 2001), adding in a blood test to assess for mean corpuscular volume (MCV) and gamma-glutamyl-transpeptidase (γGT) (Di Bari, Silvestrini, Chiarlone, Alfieri, Patussi, Tiimpanelli, Pini, Masotti, & Marchionni, 2002), or incorporating additional questions assessing quantity/frequency of alcohol consumption (Carrington Reid, Tinetti, O’Connor, Kosten, & Concato, 2003). The CAGE is also insensitive in the detection of binge and problem drinking (Adams, Barry, & Fleming, 1996).

The CAGE is a popular addiction assessment tool because it is brief and easy-to-remember, particularly useful features in busy settings (O’Connell et al., 2004). The four questions require self-recognition of an alcohol problem (i.e., Have you ever tried to cut down on your drinking?) and its yes/no format makes it easy for respondents to deny any problematic use. It was designed to detect abusive and dependent drinkers, as defined by DSM criteria, but may
not be sensitive in detecting those who may be suffering from alcohol-related consequences without meeting diagnostic criteria for alcohol use disorders.

**Short Michigan Alcoholism Screening Test – Geriatric version (SMAST-G, Appendix H)**

The Geriatric version of the Michigan Alcohol Screening Test (MAST-G) was adapted from the original Michigan Alcohol Screening Test (MAST). The MAST is comprised of 25 yes/no questions to screen for alcohol abuse and dependence in adolescents and adults. Although some studies have recommended the MAST to screen alcoholism in seniors (Willenbring, Christensen, Spring, & Rasmussen, 1987; Hirata, Almeida, Funari, & Klein, 2001), it has also been shown to have low sensitivity (52%) in detecting older alcoholics (Moran, Naughton, & Hughes, 1990).

The 24-item MAST-G was developed based on a literature review, critique with a panel of expert alcoholism treatment professionals, and a focus group of older alcoholics (Blow, Brower, Schlenberg, Demo-Dananberg, Young, & Beresford, 1992). The assessment explores the association of palpitations, drowsiness, talkativeness, decreased appetite, memory problems, loss of interest in activities, with drinking; concerns of the respondent and/or loved ones about drinking; the relationship of drinking to losses, loneliness, anxieties, and drinking context. Certain studies have found the MAST-G to be an adequate tool (MacNeil, Campbell, & Vernon, 1994; Blow et al., 1992; Morton, Jones, & Manganaro, 1996; Joseph, Ganzini, & Atkinson, 1995), while one study has not (Luttrell, Watkin, Livinston, Walker, D’Ath, Patel, Shergill, Dain, Bielawska, & Katona, 1997).

The shortened 10-item version of the MAST-G (SMAST-G) has been shown to be as effective in differentiating hazardous drinkers from non-hazardous drinkers as the original
MAST-G (Johnson-Greene, McCaul, & Roger, 2009), although the sensitivity ranges from 52-75% (Johnson-Greene, McCaul, & Roger, 2009; Moore, Beck, Babor, Hays, & Reuben, 2002). Some of the questions on the MAST-G and SMAST-G imply the need to be self-aware of an alcohol-related problem. One question asks whether respondents make rules for their drinking. A person who agrees to this may be suggesting that they have already recognized that a problem exists, they do drink in excess, and they are making an effort to change it. Because senior problem drinkers may not have such awareness, this type of question may not be helpful to identify them. Many seniors may not realize that they are experiencing ill effects from their alcohol consumption, especially if they drink less than in their youth. Another question in the MAST-G asks whether the respondent has ever hidden bottles of alcohol from family members. If a senior were making an effort to hide the signs of an alcohol problem, they may not admit such behaviour to a health care professional. Denial is a common problem with older drinkers, especially if alcohol consumption is not considered acceptable in their culture or among their cohort, and questions should be sensitive to this by broaching the subject in a sensitive manner.

Senior Alcohol Misuse Indicator (SAMI, Appendix I)

The Senior Alcohol Misuse Indicator (SAMI) was specifically developed to address the increase in health care for older adults being provided in the home, while assessing for alcohol-related problems in a gentle and non-threatening manner (CAMH Healthy Aging Project, 2008). The SAMI does not restrict its scope to alcoholic seniors, but also identifies seniors who are at-risk for alcohol-related problems. The five questions that comprise the SAMI were developed and field-tested with health care providers that work with seniors in their home and uses a non-confrontational approach and language to inquiring about alcohol use. The opening question is a checklist of the common symptoms of alcohol misuse that may be confused as normal aging,
depression, or dementia. Seniors are often used to answering questions about their health and this question was determined to be a non-threatening opening to the screening tool. Alcohol consumption is assessed by using the word “enjoy” to provide a positive connotation and alcohol is referred to as “wine, beer, or spirits.” Changes in drinking patterns over the respondent’s life are assessed in an open-ended manner, as it has been suggested that open-ended questions may help provide additional assistance with rapport to identify more individuals with alcohol-related problems (Steinwig & Worth, 1993). The last question assesses for insight and asks the patient to consider whether their reported symptomatology in the first question may be related to their use of alcohol.

The advantage that the SAMI has over the CAGE and SMAST-G is it does not present as face-valid; the senior respondent cannot easily tell that he/she is being assessed for an alcohol problem, which may thereby minimize denial and defensive responses. The validation study established that the SAMI has adequate sensitivity and specificity at 79% and 55%, respectively in a community setting, and was also well received by the health care workers and their clients participating in the study (CAMH Healthy Aging Project, 2008). On account of the reliance on open-ended questions, scoring for the SAMI is more challenging than adding up the affirmative responses, as with the CAGE and the SMAST-G. Additional research needs to be conducted to assess, further, the validity of the SAMI.

**Under-detection of Alcohol-related Problems**

Despite the presence of useful screening tools and best practice guidelines on how to approach screening with older drinkers (Center for Substance Abuse Treatment, 1998), alcohol-related problems in the senior population often go undetected by the health profession; these are least likely to be detected among the mid-old and the oldest-old (Duru, Xu, Tseng, Mirkin, Ang,
Less than half of physicians regularly asked about maximum amounts of alcohol intake on a single occasion (Friedmann, McCullough, Chin, & Saitz, 2000). One particular difficulty in the evaluation of senior alcohol use is the challenge for health care providers to be able to differentiate the physiologic and cognitive effects of aging from those of alcohol use and to separate alcoholism from other common disorders in this age group, such as depression or dementia. Clinicians may also be confused about the conflicting information regarding how much alcohol is considered “safe” and “protective” with the vast range of light-to-moderate drinking shown to provide cardiovascular benefits in the literature (from 1-6 drinks weekly, 1-2 drinks per day, or more than 14 drinks per week) (Grønbøk, Johansen, Becker, Hein, Schnohr, Jensen, Vestgo, & Sørensen, 2004; Lang, Guralnik, Wallace, & Melzer, 2007; Lee, Sudore, Williams, Lindquist, Chen, & Covinsky, 2009; Mukamal, Chung, Jenny, Kuller, Longstreth Jr., Mittleman, Burke, Cushman, Psaty, & Siscovick, 2005). Moreover, these recent studies are observational in nature and do not address whether abstainers should start consuming alcohol moderately to take advantage of the health benefits of alcohol or whether moderate drinkers approaching the age of 65 should reduce their consumption to meet current low-risk drinking guidelines for seniors (Lang & Melzer, 2009).

Health care workers may rely on stereotypes and biases of the prototypical older alcoholic to inform their screening practice. For example, clinicians are less likely to screen for alcohol use problems among older individuals, women, the educated, and those with higher socioeconomic status (Sorocco & Ferrell, 2006). Health care providers may also have a bias in regards to the effectiveness of treatment options for those identified with alcohol problems. Alcoholism is more easily identified among younger populations than older populations and of the few older patients that are identified as problem drinkers, the referral rates for treatment
among elderly is lower than in younger patients (Curtis, Geller, Stokes, Levine, & Moore, 1989). In a study of elderly inpatients in a hospital, only 15% of those identified as abusing or dependent on alcohol were referred to a rehabilitation program (Mulinga, 1999). Ageism may also keep health providers from assessing for alcohol-related problems, assuming that drinking may be one of the only pleasures the senior client may have remaining in their lives. From the experience of older problem drinkers who have been able to stop drinking and begin to live fuller and more satisfying lives after they have stopped drinking, this line of reasoning is a myth (Dufour & Fuller, 1995).

Front-line health care workers may not know how to inquire about alcohol use with their senior clients with or without a screening tool, fearing offending the client or eliciting defensiveness and denial. Denial is reinforced in many older alcoholics who may have long-standing beliefs that alcoholism is a moral weakness or character defect (American Medical Association Council on Scientific Affairs, 1996). Older problem drinkers may have also grown up in an era where individuals were expected to take responsibility for their own problems, rather than seeking outside help. With the shift of health care from hospital, emergency rooms, and long-term care facilities to primary care and home care in Canada (Miller, McKeever, & Coyte, 2003; Health Canada, 2004), this may be especially true for health care workers that do home visits and focus on establishing and maintaining rapport at every visit. Only 13% of physicians use a formal screening tool to identify problem drinkers (Friedmann, McCullough, Chin, & Saitz, 2000) and tend to only do so when such alcohol abuse is already obvious (Bercsi, Brickner, & Saha, 1993), either because the patient presents with drinking and driving issues or when others raise concern about the patient to the clinician (Duru et al., 2010). Surveyed general practitioners
also cite lack of time as an obstacle to alcohol assessment and brief intervention (Aalto & Seppä, 2001).

**Current Study**

The development of a tool to detect senior alcohol misuse is important for a number of reasons. If alcohol-related problems are not identified in emergency or general medicine departments of hospitals, in physicians’ offices, or in the home by health care providers, there will be few other opportunities to do so. Arming health care professionals with a screening tool would provide a standardized and valid method of inquiring about seniors’ alcohol use at every assessment and physical exam. An effective instrument for this population would focus on identifying older adults whose alcohol use decreases their physical or psychosocial functioning in any way (e.g., in combination with medication, medical conditions, or social factors), regardless of the quantity of their usage. Ideally, the tool would appeal to health care workers involved in its administration (in terms of brevity, usefulness, ease of use, etc.).

The Center for Substance Abuse Treatment (1998) has provided best practice guidelines in the screening of alcohol-related problems among older adults (i.e., in a nonjudgmental, nonthreatening manner), and yet few screening tools use such an approach. Clinicians may be more likely to use a screening tool if one that was more senior-friendly were available to them. This, in turn, may improve rates of detection of alcohol-related problems among senior drinkers. Although the SMAST-G was the first screening tool to take a more senior-appropriate perspective of alcohol use disorders, the SAMI is the first screening tool to take into consideration a senior-friendly approach and senior-appropriate content. To date, the SAMI has not yet been compared to other popular screening tools available, such as the CAGE or SMAST-G. This study aims to compare the *performance* of the SAMI, SMAST-G, and CAGE among a sample of community
seniors against a gold standard (clinical interview) and to determine the feasibility of incorporating each screening tool into the clinical practice of outreach mental health providers.

**Hypotheses**

Given the established literature demonstrating its effectiveness, a focus on psychometrics during development, and a senior-focused perspective of alcohol use disorders, the SMAST-G is hypothesized to outperform the CAGE and SAMI in the detection of senior alcohol-related problems, as measured by sensitivity, specificity, and Area under the Receiver Operating Characteristic (AUROC) in the Performance study. For the Feasibility study, the SAMI is hypothesized to be the preferred screening tool among health care workers to implement into their clinical protocol because of its senior-friendly approach and more expansive viewpoint of alcohol-related problems among older adults.
Chapter 2

Methods

Overall Design

The dissertation was divided into two studies. The **Performance** study was designed to cross-validate three screening tools (the CAGE, SMAST-G, and SAMI) for alcohol-related problems in geriatric mental health patients recruited from participating outreach programs across Ontario. Following a poor response to recruitment, additional participants were recruited from community organizations and through word of mouth (i.e., asking current participants to invite their friends or family to participate). Follow-up interviews with participants and a collateral informant, selected by the participant, were conducted by the principal investigator. The **Feasibility** study was designed to test the utility and feasibility of the three screening tools among participating Geriatric Mental Health Outreach programs across Ontario. Participating health care workers were asked to administer the three screening tools to their senior clients within their clinical protocol. They were then asked to provide feedback on each of the screening tools using a number of different characteristics (e.g., ease of administration, ease of scoring, etc.).

**Performance Study**

**Participants**

Participants were initially recruited through five Geriatric Mental Health Outreach teams in Ontario. These included 1) the Geriatric Psychiatry Outreach Team of Providence Continuing Care Centre – Mental Health Services (Kingston); 2) the Geriatric Mental Health Community Team of the Brockville Mental Health Centre, the Royal Ottawa Health Care Group (Ottawa region); 3) the Geriatric Psychiatry Outreach Team of Regional Mental Health Care-London, St. Bob.```
Joseph’s Health Care (London); 4) the Southwestern Ontario Regional Psychogeriatric Program of Parkwood Hospital, St. Joseph’s Health Care (Southwest Ontario); and 5) the Geriatric Community Mental Health Clinic, London Health Sciences Centre (London). Following poor recruitment in the initial three years of data collection, recruitment was expanded to the community with flyers being handed out at Third Age Reach Outreach Program (St. Joseph’s Health Care, London), Dr. J. Fogarty’s Mild Cognitive Impairment group of Parkwood Hospital (St. Joseph’s Health Care, London), T. Moosa’s Aphasia group of the School of Communication Sciences and Disorders (Faculty of Health Sciences, University of Western Ontario, London), the Canadian Centre for Activity and Aging (London), and with the Londoner community newspaper (a local free newspaper).

Inclusion criteria for the study included:

1. Age 55 years or older.

2. Cognitive capacity to answer questions coherently.

3. Willingness and capacity to give verbal consent.

4. Sufficient literacy and fluency in English to participate in the interview.

Cognitive capacity was not assessed using standard cognitive screening tools, such as the Mini-Mental Status Examination (MMSE) which provides a momentary snapshot of cognitive function. Rather, the ability to participate in the study was assessed based on clinical evaluations of the referring health care provider or by the principal investigator. Confidentiality was maintained throughout the research process. No personal identifiers were or will be used in any reports arising from the study. Each participant was assigned a number, which was recorded on the materials. All files were kept in a locked filing cabinet in the investigator’s office.
The protocol and all related forms for this study were approved by the Queen’s Health Sciences Research Ethics Board on August 30, 2005, Providence Continuing Care Centre Research Review Committee on September 21, 2005, University of Western Ontario Health Sciences Research Board on March 29, 2007, Royal Ottawa Health Care Group Research Ethics Board on July 27, 2007, and the Lawson Health Research Institute Clinical Research Impact Committee on September 20, 2007.

Health care professionals were requested to ask, but not persuade, their patients to participate in the research study. This was to avoid any perception, by potential participants, that refusing to participate was equivalent to refusing service. When participants agreed to have their contact information passed on to the principal investigator, he/she had the opportunity to decline participation when contacted by the principal investigator. This occurred without their health care professional’s knowledge. Thus, the decision to continue with the study rested solely on the participant.

**Sample Size**

The ideal sample size for this study is 100 subjects. The minimum number is 60. Assuming that the anticipated Area Under the ROC (AUROC) curve (see Data Analysis section) would be at least 0.75 (a value of 0.5 meaning a useless test, while 1 is a perfect test) with a standard deviation of 0.05, the required sample size would be 96 subjects (Hanley & McNeil, 1982). If the AUROC is 0.8 and 0.85 with a similar standard deviation (0.05), the required sample size is 80 and 62 respectively. Using a sample size of 100, as stated earlier, is more than sufficient in order to cover the expected range of the AUROC.
Procedure

Health care staff from participating health Geriatric Mental Health Outreach programs recruited potential participants (Appendix C) using a standardised script. These individuals were also left with an information form (Appendix D) outlining the details of participation. Seniors who agreed to have their contact information shared were then contacted by the principal investigator. Participants recruited from the community contacted the principal investigator directly by telephone (as provided by the flyers/advertisements) and were then informed of the details of the study.

If the interview was conducted in person, the principal investigator ensured that each participant read and fully understood the letter outlining the details of the interview (Appendix E). All participants were given the opportunity to ask questions and share concerns prior to the start of the interview. When the participant was satisfied that all of their questions and concerns had been addressed, written consent was obtained and the interview began. If the participant indicated that he/she wanted to do the interview over the telephone, he/she was mailed a self-addressed stamped envelope containing the letter of information (Appendix E) and consent form (Appendix F); the completed forms were mailed back to the principal investigator after any questions or concerns were addressed. In both situations, the participants were given every opportunity to clarify any points that he/she did not understand and, if necessary, to ask for more information. Most importantly, participants were clearly informed that they could withdraw their consent to participate at any time without penalty or loss of benefits to which they would otherwise be entitled from Queen’s University, the University of Western Ontario, the Geriatric Mental Health Outreach team, or the community organization from where they were recruited. Both the investigator and the participant signed and dated the written consent form (Appendix F)
to indicate that consent had been obtained. If requested, a copy of the signed consent form and the Letter of Information were provided to the participant for future reference. All original signed consent forms were stored in the principal investigator’s locked study file.

The three alcohol screening tools were administered, in random order, at the beginning of the interview (Appendices G-I). There is no evidence for order effects in administration of these screening tools; therefore presenting the tools in random order should eliminate any potential carryover effects. The subsequent in-depth interview included the completion of the demographic information form (Appendix J), the Medical History information form (Appendix K), and Module E of the SCID (Appendix L). Participants were also asked to provide the name of a collateral informant (Appendix M). If the interview with the participant took place in person, they were provided with an invitation and letter of information (Appendices N and O) to give to the collateral informant. If the interview with the participant took place over the phone, the participant was asked to pass on the principal investigator’s contact information (i.e., telephone number). If the informant was interested in participating in the collateral interview, he/she was asked to contact the principal investigator; the invitation and letter of information were mailed to interested collateral informants. After consent was obtained, the interview (using the Collateral Interview Form, Appendix P) could take place in person or over the phone.

Materials

Community agencies were asked to post a flyer recruiting volunteers for a study examining the drinking habits of older adults (Appendix A). All agencies that agreed to participate in recruitment for this study were sent a package containing the following items:

Information Letters
Letter of information for health care workers (Appendix B): This form outlined the aims, procedures, and implications of the project from the staff’s perspectives and was given to all participating health care workers.

Standardized script for health care workers (Appendix C): The script was used by staff to obtain verbal consent from senior patients and to provide participant contact information to the principal investigator. The script included a short outline of the client information form.

Client invitation letter (Appendix D): This invitation letter was given to potential participants by health care workers and was a brief version of the Client Information form. These potential participants were then asked whether they would be interested in having the principal investigator call them to discuss the study further.

Letter of information for clients (Appendix E): This form outlined the aims, procedures, and implications of the project from the patients’ perspectives and was given to participants prior to the onset of the interview.

Client consent form (Appendix F): This form documented written consent by the participant for taking part in the study.

Assessment Tools

CAGE (Appendix G): One affirmative answer is used as a cut-off score for alcoholism in older adults, as opposed to two in the younger population (Selzer 1971; Ewing 1984).

Short form of the Michigan Alcoholism Screening Test – Geriatric version (Appendix H): A score of 2 or more (e.g., “yes” responses) indicates an alcohol problem (Barry & Blow, 1999).

Senior Alcohol Misuse Indicator (SAMI) (Appendix I): A SAMI score of 1 or more indicated an at-risk or problem drinker.
Demographic information form (Appendix J): Demographic and personal information was collected on each participant. This included date of birth, gender, education level, as well as current living arrangements, health status, medical problems, etc.

Medical history form (Appendix K): Information on the medical history of each participant was collected in order to assess previous or current medical/psychiatric conditions, use of prescription and over-the-counter medications, as well as family history of medical/psychiatric conditions that could interact with the effects of alcohol. This information was used in classifying each participant according to type of drinker (see Structure Clinical Interview below).

Structured Clinical Interview for DSM-IV (SCID) – Module E for Alcohol (Appendix L): The SCID is composed of various modules that assess disorders of substance use, psychosis, mood, anxiety, somatoform, eating, adjustment, and personality. The alcohol portion of Module E (Substance Use Disorders) was administered by the principal investigator. Alcohol use disorders (alcohol abuse and dependence) are defined by the Diagnostic and Statistical Manual of Mental Disorders – Edition IV (DSM-IV) using specific criteria (American Psychiatric Association 1994). Despite problems with the DSM-IV criteria for older adults (Hartford & Samorajski 1982), the SCID is still recommended as an assessment tool for substance use disorders (Center for Substance Abuse Treatment, 1998).

This SCID, in combination with the Medical History Form, was used as the “gold standard” comparison with the 3 screening tools (SAMI, CAGE, and SMAST-G). More specifically, a participant was classified as a problem drinker if they met DSM-IV diagnostic criteria for alcohol abuse or dependence using Module E of the SCID. A participant was also classified as a problem drinker if they drank more than 1 standard drink daily that could cause or exacerbate a current medical condition, increase alcohol-related symptoms, or interact with a
current medication. An **at-risk drinker** had a medical/psychiatric condition, alcohol-related symptoms, and/or used medications that could cause or exacerbate any alcohol-related symptoms if the level of alcohol consumption increased. A participant who reported any low-frequency drinking (i.e., one drink a week or less) with a history of alcohol abuse or dependence was also classified as an **at-risk drinker**. All at-risk drinkers consumed some amount of alcohol and enjoyed it. A participant was classified as a **non-drinker** if they drank no alcohol, drank only for religious reasons (i.e., Seder), or drank alcohol but had no medical/psychiatric conditions or medications that alcohol may interact with.

*Contact information form* (Appendix M): Participants were asked to provide the name and contact information of an individual who could corroborate the information they had provided on their alcohol use. This step was optional. If participants named a collateral informant, the individual was contacted and provided with the contact information sheet.

*Contact invitation letter* (Appendix N): The principal investigators provide this invitation letter to potential collateral informants to explain why they were being contacted.

*Letter of information for contacts* (Appendix O): This form outlined the aims, procedures, and implications of the project from the collateral informants’ perspectives. These potential participants were then asked to contact the principal investigator to discuss the study further or to participate in the collateral interview. Verbal consent was documented if the collateral informant agreed to participate in the collateral interview.

*Collateral interview form* (Appendix P): Collaterals were interviewed using an 8-page structured interview that assesses a client’s current drinking behavior, typical drinking pattern, alcohol-related consequences in the past year, and any changes in their drinking pattern.
Collaterals were also asked to rate the accuracy of their statements so that participant and collateral reports could be correlated (Tucker, Vuchinich, Harris, Gavornik & Rudd, 1991).

Data Analyses

For each screening tool, the following measurements were calculated (see Table 1):

**Sensitivity:** The proportion of participants were diagnosed as problem drinkers according to the SCID who had a positive test result on the tool \([\text{number of true positive}/(\text{number of true positive + number of false negative})]\).

**Specificity:** The proportion of participants not diagnosed as problem drinkers according to the SCID who had a negative test result on the tool \([\text{number of true negative}/(\text{number of true negative rate + number of false positive})]\).

**Positive predictive value:** The probability that a participant with a positive test result on the tool was diagnosed as a problem drinker according to the SCID \([\text{number of true positive}/(\text{number of true positive + number of false positive})]\).

**Negative predictive value:** The probability that a participant with a negative test on the tool was not diagnosed as a problem drinker according to the SCID \([\text{number of true negative}/(\text{number of true negative + number of false negative})]\).
### Table 1. Classification of participants as problem or non-problem drinkers using the screening tool (CAGE, MAST-G, and SAMI) test results and diagnosis criteria of the SCID Module E. MAST-G = Geriatric version of the Michigan Alcohol Screening Test; SAMI = Senior Alcohol Misuse Indicator; SCID = Structure Clinical Interview for the Diagnostic and Statistical Manual, Version IV.

<table>
<thead>
<tr>
<th>Screening Tool Test Result</th>
<th>SCID Module E</th>
<th>Diagnosis</th>
</tr>
</thead>
<tbody>
<tr>
<td>PROBLEM DRINKER</td>
<td>True Positive</td>
<td>False Positive</td>
</tr>
<tr>
<td>NON-PROBLEM DRINKER</td>
<td>False Negative</td>
<td>True Negative</td>
</tr>
</tbody>
</table>

**Area under the Receiver Operating Characteristic (AUROC) curve:** The AUROC provides information on a test’s ability to discriminate between persons with and without the condition of interest. Using SPSS statistical software package, a curve of Sensitivity as a function of (1-Specificity) was plotted (the ROC curve). The area under the curve indicates the accuracy of the test – at the extremes, an area of 0.5 is indicative of a useless test, whereas an area of 1 is a perfect test. This statistic is commonly used in clinical research to assess the validity of a psychometric test.

**One-way Analysis of Variance (ANOVA):** This procedure produces a one-way analysis of variance for a quantitative dependent variable by single factor (independent) variables. The ANOVA is used to test the hypothesis that several means are equal and was calculated to determine whether problem, at-risk, and non-risk drinkers were statistically different on certain measures (i.e., screening tool scores).

**Post-hoc analyses:** Least Significant Difference (LSD) was used to further examine the differences identified by the ANOVA.
Feasibility Study

Participants

Health care workers were recruited at the 20th Anniversary Psycho-Geriatric Team Exchange conference (June 8-10, 2005), the 35th annual Canadian Association on Gerontology conference (November 1-3, 2007), and through the participating geriatric mental health teams of the Performance study. Confidentiality was maintained throughout the research process in that no personal identifiers were or will be used in any reports arising from the study. Each participant was identified by their initials, which were recorded on the materials. All files were kept in a locked filing cabinet in the investigator’s office.

The protocol and related forms for this study were approved by the Queen’s Health Sciences Research Ethics Board on August 30, 2005, Providence Continuing Care Centre Research Review Committee on September 21, 2005, Joint Group Health Centre/Sault Area Hospital Research Ethics Board on April 5, 2007, University of Western Ontario Health Sciences Research Board on March 29, 2007, Royal Ottawa Health Care Group Research Ethics Board on July 27, 2007 and the Lawson Health Research Institute Clinical Research Impact Committee on September 20, 2007.

Materials

Information Letters

Each participating health care worker received a package containing the following forms:

*Letter of information for health care workers* (Appendix Q): This form outlined the aims, procedures, and implications of the project from the staff’s perspectives.

*Letter of information for clients* (Appendix R): This form outlined the aims, procedures, and implications of the project from the participants’ perspectives.
Documentation of verbal consent (Appendix S): This script was used by health care workers to ensure that their participants understood the information outlined by the Letter of Information and to document verbal consent.

Assessment Tools

Three copies of each of the alcohol screening tools (CAGE, SMAST-G, and SAMI) were included in the package (Appendices G-I).

Feedback Form

A one-page questionnaire (Appendix T) was developed for the purpose of assessing the utility of the alcohol screening tools that would allow the feedback to be analyzed quantitatively. Participants were asked to rate each screening tool on a number of different characteristics, including providing an overall rating of the tool. Each of the screening tools was rated on a three-point scale (1=good, 2=fair, 3=poor) using a different descriptor such as ease of administration, ease of scoring, amount of information provided by the tool, etc. A final question provided a global rating of each tool by asking which of the three the health care worker would be most likely to incorporate into their existing assessment protocol. A section was provided at the bottom of the form for participants to add any additional comments about the screening tools and/or their experience with them.

Procedure

After contacting the principal investigator to indicate their interest, consenting health care workers were provided with an information package containing forms for staff (Appendix A) and clients (Appendix R), the three alcohol screening tools (Appendices G-I), and a feedback form (Appendix T). Each participating health care worker was asked to obtain and document verbal consent from participating clients (Appendix S) and administered one of the SAMI, CAGE, or
MAST-G as part of their routine assessment. The participating health care workers were asked to use each of the tools at least three times with their patients, only one tool per client. The explanation of the study and administration of one of the screening tools should have taken no longer than five minutes per patient.

Following administration of all of the screening tools, the health care workers filled out a one-page questionnaire on each alcohol-screening tool. This provided information on a number of different categories that may affect whether they would incorporate the tool(s) into their clinical practice. The participants faxed or used a self-addressed stamped envelope to return the completed form to the principal investigator. The submission of a completed feedback form was taken as implied consent by the health care provider to participate in this study.

Data Analysis

Mean scores of the participants’ ratings were calculated to determine which screening tool was rated the best along the 10 characteristics listed (Appendix T). An ANOVA and post-hoc analyses using Least Significant Difference (LSD) were used to compare the ratings for each of the screening tools. Additional comments were recorded and provided qualitative information on the feasibility of incorporating each tool into a geriatric mental health outreach practice.
Chapter 3

Results

Performance Study

Participants

One hundred and twenty-one participants, recruited through clinical and community resources, were invited to participate in the Performance study. Four of these individuals declined to participate after speaking with the principal investigator and 30 were lost to follow-up (i.e., did not return phone calls/messages from the principal investigator). This left a total of 87 participants (28 from clinical resources, 59 from community resources) in the final sample.

Demographics

Demographic information of the total sample is presented in Table 2, as number of participants in each category. The group percentages for each of these categories will be presented in the text of this section. The average age of the sample was 72.59 years (SD=8.90, range 55-94 years), and 60.92% of the participants were female. Approximately half of the sample (56.32%) had completed at least one year of college or university, and the majority were retired at the time of the interview (86.21%). Most commonly, participants were living with a spouse or partner (57.47%); the remainder were living on their own (37.93%) or with other family members (4.6%). The majority of the group reported having good relations with their family members (96.55%), and almost all were in good or excellent health (67.82% and 26.44%, respectively).
<table>
<thead>
<tr>
<th>Demographics</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Sex</strong></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>34</td>
</tr>
<tr>
<td>Female</td>
<td>53</td>
</tr>
<tr>
<td><strong>Age</strong></td>
<td></td>
</tr>
<tr>
<td>55-64</td>
<td>20</td>
</tr>
<tr>
<td>65-74</td>
<td>32</td>
</tr>
<tr>
<td>75-84</td>
<td>25</td>
</tr>
<tr>
<td>85-94</td>
<td>10</td>
</tr>
<tr>
<td><strong>Education</strong></td>
<td></td>
</tr>
<tr>
<td>Grade school/Junior high</td>
<td>7</td>
</tr>
<tr>
<td>High school</td>
<td>24</td>
</tr>
<tr>
<td>At least 1 year College/University</td>
<td>49</td>
</tr>
<tr>
<td>Postgraduate</td>
<td>7</td>
</tr>
<tr>
<td><strong>Employment</strong></td>
<td></td>
</tr>
<tr>
<td>Retired</td>
<td>75</td>
</tr>
<tr>
<td>Part-time</td>
<td>5</td>
</tr>
<tr>
<td>Self-employed</td>
<td>2</td>
</tr>
<tr>
<td>Full-time</td>
<td>5</td>
</tr>
<tr>
<td><strong>Living arrangements</strong></td>
<td></td>
</tr>
<tr>
<td>Alone</td>
<td>33</td>
</tr>
<tr>
<td>With partner/spouse</td>
<td>50</td>
</tr>
<tr>
<td>With family</td>
<td>4</td>
</tr>
<tr>
<td><strong>Family relations</strong></td>
<td></td>
</tr>
<tr>
<td>Good</td>
<td>84</td>
</tr>
<tr>
<td>Strained</td>
<td>2</td>
</tr>
<tr>
<td>No family</td>
<td>1</td>
</tr>
<tr>
<td><strong>Self-rated health</strong></td>
<td></td>
</tr>
<tr>
<td>Excellent</td>
<td>23</td>
</tr>
<tr>
<td>Good</td>
<td>59</td>
</tr>
<tr>
<td>Poor</td>
<td>5</td>
</tr>
</tbody>
</table>

Table 2. Demographic characteristics of participants in the Performance study by number of participants (total n=87). Data were collected in the Demographic Information form (Appendix J) as part of the clinical interview and are presented as the total number in each category.

As defined in the Methods Section, at-risk drinkers and problem drinkers were defined as consumers of alcohol who also reported any contraindicated medical conditions or prescription medications for which alcohol use is not recommended. The average number of contraindications for the total group was 1.22 (SD=1.13, range 0-4); the list of contraindicated medical conditions...
and prescription medications as well as the number of participants endorsing each is detailed in Table 3. Among the participants, the group percentages of the most common contraindicated medical condition was high blood pressure (39.08%), followed by depression (10.34%), osteoporosis (9.20%), diabetes (8.05%), previous alcohol abuse (8.05%), and anxiety (6.90%). Smaller percentages of the participants reported past alcohol dependence (3.45%), bipolar disorder (2.30%), current alcohol abuse (1.15%), gout (1.15%), and a memory disorder (i.e., Alzheimer disease, 1.15%). Among contraindicated prescription medications, the most commonly found among the participants were antidepressants (8.05%), blood thinners (5.75%), daily pain medication (2.30%), blood pressure medications (1.15%), digoxin (1.15%), and a sedative (1.15%).
Table 3. Contraindicated medical conditions and prescription medications for alcohol consumption among participants in the Performance study. Data were collected in the Medical History form (Appendix K) as part of the clinical interview, and are presented as the total number in each category.

### Alcohol Consumption

Participants’ self-reported alcohol use was collected through the Structured Clinical Interview for the DSM-IV (SCID). The number of participants in each category is presented in Table 4 and the group percentages for each of the categories are listed below. The majority of the sample reported being non-drinkers or very occasional drinkers (i.e., consuming less than one drink per month). Approximately 40% of participants identified themselves as regular drinkers, consuming 1 drink per day on a weekly basis. Less than 10% of the group admitted to consuming up to 3 drinks per day or drinking alcohol in a binge pattern (4 drinks for women and 5 for men in a 2-hour period). The majority of the total sample (88.5%) did not meet clinical criteria for an alcohol use disorder (Table 5), although 6.9% were diagnosed with previous alcohol abuse and
3.4% with previous alcohol dependence. Only one participant was diagnosed with current alcohol abuse (1.1%).

<table>
<thead>
<tr>
<th>Drinking pattern</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td>19</td>
</tr>
<tr>
<td>Occasional (less than monthly)</td>
<td>25</td>
</tr>
<tr>
<td>Regular (weekly, maximum 1 drink daily)</td>
<td>35</td>
</tr>
<tr>
<td>Regular (maximum 3 drinks daily)</td>
<td>6</td>
</tr>
<tr>
<td>Binge drinking</td>
<td>2</td>
</tr>
</tbody>
</table>

Table 4. Drinking information from the clinical interview for the final sample (n=87). Data were collected in Module E of the Structured Clinical Interview for the Diagnostic and Statistical Manual – 4th Edition revised (Appendix L) as part of the clinical interview, and are presented as the total number in each category.

<table>
<thead>
<tr>
<th>Clinical diagnoses for alcohol use disorder</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td>77</td>
</tr>
<tr>
<td>Previous alcohol abuse</td>
<td>6</td>
</tr>
<tr>
<td>Previous alcohol dependence</td>
<td>3</td>
</tr>
<tr>
<td>Current alcohol abuse</td>
<td>1</td>
</tr>
<tr>
<td>Current alcohol dependence</td>
<td>0</td>
</tr>
</tbody>
</table>

Table 5. Clinical diagnoses for alcohol use disorders from the clinical interview for the final sample (n=87). Data were collected in Module E of the Structured Clinical Interview for the Diagnostic and Statistical Manual – 4th Edition revised (Appendix L) as part of the clinical interview, and are presented as the total number in each category.

Of the total sample of 87 participants, only 34 collateral informants were contacted. The results of the collateral interview are presented in Table 6 and group percentages are listed below.

Of the 34 collateral informants, 73.53% confirmed the drinking habits of their family member.

The remaining 26% provided discordant information about the participants’ alcohol intake: 17.65% gave lower estimates whereas 8.82% gave higher estimates. Seventy-nine percent of collaterals were spouses/partners, 11.76% were adult children, 5.88% were other family members, and 2.94% were close friends.
Table 6. Overall results from collateral informant interviews and type of relationship to participant (n=34). Data were collected in the Collateral Interview Form + Final Question (Appendix P) as part of the clinical interview, and are presented as the total number in each category.

### Classification of Drinkers

Very few participants (n=10) met DSM-IV criteria for previous or current alcohol abuse or dependence, according to the SCID. Six of these reported abusing alcohol in the past, three were previously dependent on alcohol, and one was currently abusing alcohol. Among the group of completed interviews, 7 problem drinkers were identified, as well as 36 at-risk drinkers, 25 non-risk drinkers, and 19 non-drinkers. Subsequent data analyses will group problem and at-risk drinkers together into a clinically significant group because identification of either type of drinker should necessitate further clinical inquiry regarding alcohol consumption and alcohol-related consequences. In contrast, non-risk and non-drinkers would not require any follow up related to alcohol consumption and so these will be combined to form a second group.

### Demographics and Drinking Information by Type of Drinker

Due to lack of power, analyses could not be conducted comparing demographic characteristics and drinking information among the four types of drinkers. The following results (and subsequent comparison analyses) examined differences between problem and at-risk drinkers.
Problem and at-risk drinkers had a higher average number ($p<0.001$) of contraindicating medical conditions and prescription medications (1.79) than non-risk and non-drinkers (0.66) (Table 8). There were no statistically significant differences among drinking patterns (Table 9) or collateral interview results (Table 11) between the two groups, but problem and at-risk drinkers were significantly more likely ($p=0.001$) to have a past and current history of an alcohol use disorder (Table 10).
Table 7. Demographic characteristics of participants by type of drinker (problem and at-risk drinkers vs. non-risk and non-drinkers) in the Performance study. Data were collected in the Demographic Information form (Appendix J) as part of the clinical interview, and are presented as the total number in each category.

<table>
<thead>
<tr>
<th>Demographics</th>
<th>Problem and At-risk (n=43)</th>
<th>Non-risk and Non-drinkers (n=44)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Sex</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>17</td>
<td>17</td>
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<td>Female</td>
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<td>27</td>
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<td><strong>Age</strong></td>
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<tr>
<td>55-64</td>
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<td>Grade school/Junior high</td>
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<td>At least 1 year College/University</td>
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<td>26</td>
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<td>Postgraduate</td>
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<td>5</td>
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<tr>
<td><strong>Employment</strong></td>
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<tr>
<td>Retired</td>
<td>37</td>
<td>38</td>
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<tr>
<td>Part-time</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Self-employed</td>
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<td>1</td>
</tr>
<tr>
<td>Full-time</td>
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<td>2</td>
</tr>
<tr>
<td><strong>Living arrangements</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Alone</td>
<td>16</td>
<td>17</td>
</tr>
<tr>
<td>With partner/spouse</td>
<td>25</td>
<td>25</td>
</tr>
<tr>
<td>With family</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td><strong>Family relations</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Good</td>
<td>42</td>
<td>42</td>
</tr>
<tr>
<td>Strained</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>No family</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td><strong>Self-rated health</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Excellent</td>
<td>10</td>
<td>13</td>
</tr>
<tr>
<td>Good</td>
<td>30</td>
<td>29</td>
</tr>
<tr>
<td>Poor</td>
<td>3</td>
<td>2</td>
</tr>
</tbody>
</table>
Table 8. The average number and standard deviations (SD) of contraindicating medical conditions and prescription medications of participants by type of drinker (problem and at-risk drinkers vs. non-risk and non-drinkers) in the Performance study. Data were collected in the Medical History form (Appendix K) as part of the clinical interview, and are presented as the total number in each category. *p<0.001.

<table>
<thead>
<tr>
<th>Drinking pattern</th>
<th>Problem and At-risk drinkers (SD)</th>
<th>Non-risk and Non-drinkers (SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td>1.79 (0.97)</td>
<td>0.66 (0.99)</td>
</tr>
<tr>
<td>Occasional (less than monthly)</td>
<td>16 18</td>
<td>21 9</td>
</tr>
<tr>
<td>Regular (weekly, maximum 1 drink daily)</td>
<td>3 14</td>
<td>0 3</td>
</tr>
<tr>
<td>Regular (maximum 3 drinks daily)</td>
<td>0 3</td>
<td>2 0</td>
</tr>
<tr>
<td>Binge drinking</td>
<td>2</td>
<td>0</td>
</tr>
</tbody>
</table>

Table 9. The drinking patterns of participants by type of drinker (problem and at-risk drinkers vs. non-risk and non-drinkers) from the clinical interview. Data were collected in Module E of the Structured Clinical Interview for the Diagnostic and Statistical Manual – 4th Edition revised (Appendix L) as part of the clinical interview, and are presented as the total number in each category.

<table>
<thead>
<tr>
<th>Clinical diagnoses for alcohol use disorder*</th>
<th>Problem and At-risk drinkers (n=43)</th>
<th>Non-risk and Non-drinkers (n=44)</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td>36</td>
<td>41</td>
</tr>
<tr>
<td>Previous alcohol abuse</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td>Previous alcohol dependence</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Current alcohol abuse</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Current alcohol dependence</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

Table 10. Clinical diagnoses for alcohol use disorders from the clinical interview for the final sample (n=87). Data were collected in Module E of the Structured Clinical Interview for the Diagnostic and Statistical Manual – 4th Edition revised (Appendix L) as part of the clinical interview, and are presented as the total number in each category. *p=0.001.
Table 11. Overall results from collateral informant interviews and type of relationship by type of drinker (problem and at-risk drinkers vs. non-risk and non-drinkers). Data were collected in the Collateral Interview Form + Final Question (Appendix P) as part of the clinical interview, and are presented as the total number in each category.

Screening Tools

CAGE (Appendix G)

The average scores and standard deviations (SD) of the sample on each of the three screening tools are presented in Table 12. Problem drinkers provided the highest scores on each of the screening tools. On the CAGE, the average score of the total sample was 0.43 (0.79) out of 4, where a score of 1 is considered clinically significant among older adults. Problem drinkers scored the highest on the CAGE with a mean score of 1.14 (0.90), followed by non-drinkers 0.53 (0.96), at-risk drinkers 0.33 (0.63), non-risk drinkers 0.28 (0.74).
Table 12. Average scores and standard deviations (SD) on each of the three screening tools by drinker classification and for the total sample (n=87), as reported by the participants during the clinical interview in the Performance Study. MAST-G = Geriatric version of the Michigan Alcohol Screening Test; SAMI = Senior Alcohol Misuse Indicator.

Table 13 lists the number of participants endorsing each of the CAGE questions by drinker classification and for the total sample. The group percentages for each of the categories are listed below. The most endorsed question on the CAGE (see Appendix G) by the entire sample (20.69%), at-risk drinkers (22.22%), and non-risk drinkers (12%) was the first one, “Have you ever felt you should cut down on your drinking?” Problem drinkers (42.86%) and non-drinkers (21.05%) most frequently endorsed the first and third questions (Have you ever felt guilty about your drinking?) on the CAGE. None of the CAGE questions nor the total score on the CAGE differentiated problem and at-risk drinkers from non-risk and non-drinkers.

Table 13. Number of participants endorsing each question of the CAGE (Appendix G) by drinker classification and for the total sample, as reported by the participants during the clinical interview in the Performance Study.

When compared to the gold standard (the clinical interview), the CAGE had a low ability to identify problem and at-risk drinkers (sensitivity of 34.88%) and good ability to identify non-
risk and non-drinkers (specificity of 79.55%) (Table 14). When the CAGE provides a positive result for a respondent, the probability of that being a true positive (positive predictive value) is 62.50%, whereas the probability of a true negative (negative predictive value) is 55.56%. The Area Under the Receiver Operating Characteristic (AUROC) for the CAGE, or the CAGE’s accuracy for identifying problem and at-risk drinkers was 0.549 (the lowest of all three screening tools), where an AUROC value of 0.5 is a useless test and 1.0 is a perfect test (Figure 5). Results of the performance measures were also analyzed using problem drinkers vs. at-risk/non-risk/non-drinkers (Appendix V). In this analysis, all three screening tools had improved sensitivity, specificity, and AUROC. Nonetheless, the ranking of the tools in terms of performance did not change substantially (the SAMI was rated best for all three measures in identifying problem drinkers).

<table>
<thead>
<tr>
<th>Screening tool</th>
<th>Sensitivity (%)</th>
<th>Specificity (%)</th>
<th>Positive predictive value (%)</th>
<th>Negative predictive value (%)</th>
<th>Area under the receiver operating characteristic (AUROC)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAGE</td>
<td>34.88</td>
<td>79.55</td>
<td>62.50</td>
<td>55.56</td>
<td>0.549</td>
</tr>
<tr>
<td>SMAST-G</td>
<td>13.64</td>
<td>95.45</td>
<td>75.00</td>
<td>53.16</td>
<td>0.601</td>
</tr>
<tr>
<td>SAMI</td>
<td>83.72</td>
<td>54.55</td>
<td>64.29</td>
<td>77.42</td>
<td>0.710</td>
</tr>
</tbody>
</table>

Table 14. The performance of the CAGE (Appendix G), Short Michigan Alcoholism Screening Test – Geriatric version (SMAST-G, Appendix H), and the Senior Alcohol Misuse Indicator (SAMI, Appendix I) in their ability to identify problem/at-risk drinkers and non-risk/ non-drinkers, as compared to the clinical interview in the Performance Study (gold standard).
Figure 5. The Receiver Operating Characteristic (ROC) Curve for the CAGE (Appendix G), comparing the CAGE results to the drinker classifications from the clinical interview (gold standard) of the Performance Study.

Short Michigan Alcoholism Screening Test – Geriatric version
(SMAST-G, Appendix H)

Table 15 lists the number of participants endorsing each of the SMAST-G questions by drinker classification and for the total sample, and the group percentages are listed below. The average score on the SMAST-G for the total sample was 0.53 (0.96) out of 10, with a cut-off score of 2 indicating an alcohol abuse problem (see Table 6). Problem drinkers had the highest average score, 2.14 (2.19), scores for the other three groups of drinkers ranged from 0.32 to 0.42.
The most endorsed questions by the total sample were the fifth (“Do you usually take a drink to relax or calm your nerves?”) and ninth (“Have you ever made rules to manage your drinking?”), at 13.79% and 11.49% respectively. Problem drinkers endorsed the fifth (“Do you usually take a drink to relax or calm your nerves?”) and eighth (“Has a doctor or nurse ever said they were worried or concerned about your drinking?”) questions most frequently, both at 57.14%, followed by the first (“When talking with others, do you ever underestimate how much you actually drink?”) and ninth (28.57%) questions. The most agreed questions for at-risk drinkers (16.67%), non-risk drinkers (20%), and non-drinkers (10.53%) were the ninth, fifth, and sixth questions (“Do you drink to take your mind off your problems?”) respectively. Among the ten questions, Questions 1, 8, and 9 were more likely to be endorsed by problem and at-risk drinkers ($p=0.039$, $p=0.039$, and $p=0.040$, respectively) than non-risk and non-drinkers. The total score on the SMAST-G did not differentiate the two groups.
Table 15. Number of participants endorsing each question of the Short Michigan Alcoholism Screening Test – Geriatric version (SMAST-G, Appendix H) by drinker classification and for the total sample, as reported by the participants during the clinical interview in the Performance Study.

When compared to the gold standard (the clinical interview), the SMAST-G had the lowest ability to identify problem and at-risk drinkers (sensitivity of 13.64%), but had the best ability to identify non-risk and non-drinkers (specificity of 95.45%) (Table 14). When the SMAST-G provides a positive result for a respondent, the probability of that being a true positive (positive predictive value) is 75.00%, whereas the probability of a true negative (negative predictive value) is 53.16%. The Area Under the Receiver Operating Characteristic (AUROC) for the SMAST-G, or the test’s accuracy for identifying problem and at-risk drinkers is 0.601, where an AUROC value of 0.5 is a useless test and 1.0 is a perfect test (Figure 6).

<table>
<thead>
<tr>
<th>SMAST-G question</th>
<th>Total (n=87)</th>
<th>Problem (n=7)</th>
<th>At-risk (n=36)</th>
<th>Non-risk (n=25)</th>
<th>Non-drinker (n=19)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 – Underestimate</td>
<td>4</td>
<td>2</td>
<td>2</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>2 – Not eaten</td>
<td>3</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>3 – Shakiness/tremors</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>4 – Hard remember night</td>
<td>2</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>5 – Calm nerves</td>
<td>12</td>
<td>4</td>
<td>2</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td>6 – Mind off problems</td>
<td>3</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>7 – Increased after loss</td>
<td>2</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>8 – Worry/concern</td>
<td>4</td>
<td>4</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>9 – Rules</td>
<td>10</td>
<td>2</td>
<td>6</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>10 – Help with loneliness</td>
<td>5</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>
Figure 6. The Receiver Operating Characteristic (ROC) Curve for the Short Michigan Alcoholism Screening Test – Geriatric version (SMAST-G, Appendix H), comparing the SMAST-G results to the drinker classifications from the clinical interview (gold standard) of the Performance Study.

Senior Alcohol Misuse Indicator (SAMI, Appendix I)

With a minimum score of 1 out of 5 flagging a potential alcohol problem, the average score on the SAMI for the total sample was 1.00 (0.90) (see Table 12). Again, problem drinkers, with a score of 2.14 (0.90), had the highest average score. Non-drinkers had an average score of 0 (0), and at-risk and non-risk drinkers scored in between the two.
The number of participants endorsing each of the SAMI questions by drinker classification and for the total sample is listed in Table 17, and the group percentages are listed below. The most commonly reported symptoms in the first question of the SAMI were difficulty with remembering things (37.93%), feelings of sadness (35.63%), feelings of anxiety (25.29%), feelings of loneliness (21.84%), poor balance (20.69%) and changes in appetite or weight (20.69%). Problem drinkers predominantly reported experiencing feelings of sadness (85.71%) but less than half reported having difficulty with their sleep (42.86%). The most common symptoms reported by at-risk drinkers were difficulty remembering things (38.89%) and feelings of sadness (36.11%). Both non-risk drinkers and non-drinkers were most likely to report experiencing difficulty remembering things in the past few months (36% and 42.11%, respectively), although non-drinkers additionally reported experiencing feelings of sadness (36.84%), feelings of anxiety (31.58%), and drowsiness (31.58%).

A vast majority of the sample admitted that they enjoyed wine/beer/spirits in the second question of the SAMI (73.56%). Less than a third of the sample stated that they enjoyed a combination of two of the three types of wine/beer/spirits (29.89%) and approximately one quarter stated they preferentially enjoyed only wine (25.29%). Problem drinkers typically preferred any of the three types of alcohol (42.86%) or a combination of two of the three options (42.86%). The majority of at-risk drinkers as well as non-risk drinkers selected either wine (36.11% and 32%, respectively) or a combination of two of the three types of alcohol (36.11% and 40%, respectively). By definition, none of the non-drinkers admitted to consuming alcohol and had no preference for the type of alcohol consumed.

More than half of the problem drinkers admitted that they drank more now than they had in the past (57.14%), whereas more than half of the at-risk drinkers stated that they drank less
than in the past (52.78%). Most of those that admitted consuming alcohol agreed that they enjoyed alcohol as much as they did in the past (67.82%). When asked about a potential connection between alcohol use and the symptoms they reported in the past (last question of the SAMI), only problem drinkers agreed that such a connection may exist (42.86%).

A number of items on the SAMI were endorsed significantly more by problem and at-risk drinkers than by non-risk and non-drinkers. Problem and at-risk drinkers reported experiencing more falls ($p=0.020$), enjoying wine/beer/spirits ($p<0.000$), maintained regular drinking or increased their drinking patterns ($p=0.001$), and had higher total scores on the SAMI (1.35 vs. 0.66, $p<0.000$).
### Table 16. Number of participants endorsing each question of the Senior Alcohol Misuse Indicator (SAMI, Appendix I) by drinker classification and for the total sample, as reported by the participants during the clinical interview in the Performance Study.

When compared to the gold standard (the clinical interview) in Table 14, the SAMI had the best ability to identify problem and at-risk drinkers (sensitivity of 83.72%) and low ability to identify non-risk and non-drinkers (specificity of 54.55%). When the SAMI provides a positive
result for a respondent, the probability of that being a true positive (positive predictive value) is 64.29%, whereas the probability of a true negative (negative predictive value) is 77.42%. The Area Under the Receiver Operating Characteristic (AUROC) for the SAMI, or the accuracy for identifying problem and at-risk drinkers is 0.710 (where an AUROC value of 0.5 is a useless test and 1.0 is a perfect test), the best of the three screening tools (Figure 7).
Figure 7. The Receiver Operating Characteristic (ROC) Curve for the Senior Alcohol Misuse Indicator (SAMI, Appendix I), comparing the SAMI results to the drinker classifications from the clinical interview (gold standard) of the Performance Study.

Scores and Order of Administration

Based on the existing literature of cross-validation studies, there is no evidence for order effects in the administration of screening tools. If any carryover effects are present, these would be minimized by randomizing the order of screening tools administration. Table 17 presents the average total scores for each screening tool, depending on the order of administration during the
clinical interview. An ANOVA showed no statistical differences between average total scores of each screening tool by order of administration.

<table>
<thead>
<tr>
<th>Screening Tool</th>
<th>Order of Administration</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>First (SD)</td>
</tr>
<tr>
<td>CAGE</td>
<td>0.52 (0.98)</td>
</tr>
<tr>
<td>SMAST-G</td>
<td>0.55 (0.91)</td>
</tr>
<tr>
<td>SAMI</td>
<td>1.03 (0.89)</td>
</tr>
</tbody>
</table>

Table 17. The average total scores and standard deviations of the CAGE (Appendix G), Short Michigan Alcoholism Screening Test – Geriatric version (SMAST-G, Appendix H), and the Senior Alcohol Misuse Indicator (SAMI, Appendix I) according to order of administration during the clinical interview in the Performance Study.

Feasibility Study

Participants

Six outreach health care workers, recruited through clinical resources contacted through the Performance study, agreed to participate in the Feasibility study. The participants included case managers (unspecified, but may include nurses, social workers, and/or occupational therapists) and one psychologist.

Ratings

Their average ratings, standard deviations, and $p$-values for the three screening tools from a one-way ANOVA are found in Table 18. Post-hoc analyses using the Least Significant Difference (LSD) determined that both the CAGE and SMAST-G were preferentially rated compared to the SAMI for their ease of scoring ($p=0.002$), the SMAST-G was better rated than the CAGE for the amount of clinical information gleaned from the screening tool ($p=0.021$), and the SMAST-G was preferred over the CAGE for comprehensiveness ($p=0.006$).
### Screening tools and Characteristics

<table>
<thead>
<tr>
<th>Screening tool characteristic</th>
<th>CAGE</th>
<th>SMAST-G</th>
<th>SAMI</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ease of administration</td>
<td>1.00 (0.00)</td>
<td>1.17 (0.41)</td>
<td>1.22 (0.55)</td>
<td>0.116</td>
</tr>
<tr>
<td>*Ease of scoring</td>
<td>1.00 (0.00)</td>
<td>1.00 (0.00)</td>
<td>1.67 (0.52)</td>
<td>0.002</td>
</tr>
<tr>
<td>Clinician comfort</td>
<td>1.00 (0.00)</td>
<td>1.33 (0.52)</td>
<td>1.5 (0.55)</td>
<td>0.162</td>
</tr>
<tr>
<td>Client comfort</td>
<td>1.50 (0.55)</td>
<td>1.50 (0.84)</td>
<td>1.33 (0.82)</td>
<td>0.905</td>
</tr>
<tr>
<td>*Amount clinical information</td>
<td>2.00 (0.89)</td>
<td>1.00 (0.00)</td>
<td>1.83 (0.75)</td>
<td>0.047</td>
</tr>
<tr>
<td>Amount truthful information</td>
<td>2.00 (0.00)</td>
<td>1.67 (0.52)</td>
<td>1.83 (0.41)</td>
<td>0.342</td>
</tr>
<tr>
<td>Ability incorporate into assessment</td>
<td>1.33 (0.82)</td>
<td>1.33 (0.82)</td>
<td>1.67 (0.52)</td>
<td>0.667</td>
</tr>
<tr>
<td>*Comprehensiveness</td>
<td>2.17 (0.75)</td>
<td>1.17 (0.41)</td>
<td>1.83 (0.41)</td>
<td>0.019</td>
</tr>
<tr>
<td>Usefulness</td>
<td>1.83 (0.98)</td>
<td>1.17 (0.41)</td>
<td>1.83 (0.75)</td>
<td>0.241</td>
</tr>
</tbody>
</table>

Table 18. The average ratings and standard deviations (SD) of the various characteristics of the CAGE (Appendix G), Short Michigan Alcoholism Screening Test – Geriatric version (SMAST-G, Appendix H), and the Senior Alcohol Misuse Indicator (SAMI, Appendix I) by participating outreach health care workers on the Feedback Form (Appendix T). Each characteristic was rated on a scale from 1-3, where 1=good, 2=fair, and 3=poor. * Indicates a statistically significant difference among the three screening tools, \( p<0.05 \).

### Comments

**CAGE (Appendix G)**

Comments from participants suggested that the CAGE was able to provide information on the respondents’ drinking history and was a good way to quickly flag drinking issues, although they may still use other screening tools to build rapport with their patient. One participant felt that this tool was the easiest to implement into the current assessment package.

**Short Michigan Alcoholism Screening Test – Geriatric version (SMAST-G, Appendix H)**

Participants noted that the SMAST-G provided the drinking history from a respondent and was a good way to open dialogue about specific alcohol issues. Most agreed that the
questions were the most useful of the three screening tools and was best able to provide details about an individual’s drinking behaviour. One participant noted that he/she will continue to use this screening tool on a regular basis.

**Senior Alcohol Misuse Indicator (SAMI, Appendix I)**

Feedback on the SAMI noted that the first question was often repetitive when participants are usually already screening for respondents’ health, depression and/or activities of daily living (ADL’s). One participant warned that any over-endorsement of symptoms reported in this first question may be unrelated to respondents’ consumption of alcohol. Although the second question was thought to be an ideal ice-breaker on the topic of alcohol (“Do you enjoy wine/beer/spirits? Which do you prefer?”), participants felt that the responses on the latter questions provided vague responses and that denial was an easy response for questions 4 (“Do you enjoy wine/beer/spirits as much as you used to?”) and 5 (“...I am wondering if you think that [selected] wine/beer/spirits might be connected?”). The SAMI was suggested to help identify individuals with depression and low mood, as well as those that may self-medicate with alcohol.
Chapter 4

Discussion

Summary

The Performance study assessed the effectiveness of three alcohol screening tools in a community sample of Canadian older adults. Among a sample of 87 participants, 7 problem drinkers, 36 at-risk drinkers, 25 non-risk drinkers, and 19 non-drinkers were identified. The three screening tools were compared in terms of differentiating problem and at-risk drinkers (sensitivity) from non-problem and non-drinkers (specificity), and overall performance (AUROC). The SAMI excelled in sensitivity and AUROC, while the SMAST-G performed best in specificity. The Feasibility study examined health care provider feedback on the usage of the same three alcohol screening tools in a geriatric mental health outreach population. The SMAST-G was rated as the best overall tool by six responding participants.

Drinking Statistics

The majority of participants in this study reported consuming alcohol in the past year. Seventy-eight percent of the sample reported drinking at least once a year, just slightly above the 70% rate reported by Statistics Canada for young-old seniors and much more than the 64% reported by the oldest-old (Health Canada, 2006). Almost a third of the participants reported enjoying at least two different types of alcohol among wine, beer, and spirits and a quarter of the participants stated that they only preferred wine. Daily drinking was almost three times more common (40%) in our sample as compared to Ontario averages (15%) for seniors (Ialomiteanu, Adlaf, Mann, & Rehm, 2011). Despite the high levels of drinking among the sample, there were lower rates of life-time and current prevalence of alcohol use disorders compared to U.S. statistics.
(Lin, Mitchell, Grella, Warda, Liao, Hu, & Moore, 2011). This large disparity may point to the limitations of the sampling method: problem drinkers may be less likely to volunteer for studies explicitly examining alcohol use.

Approximately nine percent of the sample exceeded the low risk drinking guidelines for seniors, comparable to the 10% of older people in the U.S. who exceed the recommended one drink per day maximum, but one third less frequent than their English counterparts (Lang, Guralnik, Wallace, & Melzer, 2007). Only eight percent of the sample were classified as problem drinkers, which is much lower than the 35% found in a recent study also incorporating the presence of high-risk co-morbidities and medication use or excessive alcohol use alone in its definition (Barnes et al., 2010). On the other hand, just over 40% of participants were classified as at-risk drinkers, exceeding the 27-8% found in recent American studies (Moore et al., 2002; Johnson-Greene et al., 2009). The disparity between these results and the U.K. statistics likely demonstrates the similarity of English culture to continental European culture, which reports almost 100% more alcohol consumption above global consumption rates (Rehm, Taylor, & Patra, 2006). The comparable results with the American studies are not surprising and may point to the close geographical proximity of Canada to the U.S. and the similarities between Canadian and American culture.

In comparing the demographic and health characteristics of the dichotomous groups of problem/at-risk drinkers and non-problem/non-drinkers, there were no clear differences except that the problem/at-risk drinkers had a higher number of existing contraindications for drinking, as expected by the definitions of these two groups. Surprisingly, there were no differences in drinking pattern between the two groups, although, as expected, problem and at-risk drinkers were more likely to have a previous or current AUD.
Collateral Informants

Only a small proportion of the participants’ collateral informants consented to participate in the collateral interview. Just under 40% of collateral informants were interviewed to corroborate participants’ reported drinking patterns, much less than the 73% reported by one other study that used collateral interviews (Moore et al., 2002). Of the 34 collateral informants that were contacted and consented to participate in the collateral interview, all but one were family members. The majority of informants (74%) confirmed the drinking information provided by the participant, 18% provided lower estimates of drinking, and only 9% reported higher estimates. This is consistent with research suggesting that patient and collateral reports of the patient’s alcohol consumption did not differ significantly (Chermack et al., 1998; Tucker, Vuchinich, Harris, Gavornik, & Rudd, 1991), although it contradicts another study suggesting that collateral informants tend to overestimate from patient information (Watson, Tilleskfor, Hoodecheck-Schow, Pucel, & Jacobs, 1984). The latter study focused solely on patients diagnosed with alcohol dependence in treatment for alcoholism, whereas the former study and this study assessed individuals recruited from non-alcoholism treatment contexts.

The low participation rate by collateral informants is likely due to the restriction that the Research Ethics Boards (REB) at Queen’s University and Western University placed on the protocol for contacting the collateral informants. Originally, participants were asked to provide the name and phone number of someone close to them who could corroborate their drinking information and the principal investigator was to call them and provide the letter of information by mail and obtain verbal consent to participate in the collateral interview. The REBs felt that this method was inappropriate because the collateral informant did not consent to being contacted by telephone. Instead, the REBs requested that participants provide full mailing addresses of their
collateral informants to the principal investigator who would then mail out the letter of
information and consent form; interested collateral informants would only respond by mail or
telephone if they wanted to participate in the collateral interviews. Given this arduous process,
only those extremely motivated to participate in research that a loved one had been involved with
contacted the principal investigator, resulting in few informants participating in the interview.

Screening Tools

Overall, the SAMI was able to identify the most number of at-risk and problem drinkers
(sensitivity of 84%) and had the highest AUROC (0.710), which indicates that it is the best
overall screening tool among the three tools tested. However, the SAMI had the poorest
specificity (55%), indicating a high level of false positives. These results are comparable to those
from a validation study by the authors of the SAMI, who reported a sensitivity of 79%, specificity
of 55% and AUROC of 0.706 (CAMH Healthy Aging Project, 2008). Only the SAMI total score
was able to differentiate between the two groups (problem and at-risk drinkers versus non-
problem and non-drinkers).

The poor specificity of the SAMI may not be a cause for concern, at least for health care
providers trying to identify alcohol-related problems in seniors. In screening, it is ideal to have
both high levels of sensitivity and specificity, indicating low levels of false positives and false
negatives. In any attempt to increase the sensitivity of any assessment (i.e., increasing criteria
used to identify a problem), there is a drop in the specificity. Having higher sensitivity at the cost
of a lower level of specificity is seen as non-problematic in clinical screening. In fact, it can open
the communication channels between older drinkers and their health care workers on how alcohol
use can affect one’s health in terms of medications, physical or emotional symptoms or medical
conditions. Further questioning can lead to accurate assessment of the individual and the respondent may also learn how drinking can affect their life, even when it is not excessive.

The SAMI performed much better than expected and this suggests that a senior-friendly approach as supported by the Center for Substance Abuse Treatment (1998) may make senior respondents more comfortable in discussing their consumption of alcohol and, consequently, may improve the identification of alcohol-related problems. The high performance of the SAMI is a surprising result given how the SAMI was initially developed, compared to other screening tools. In the case of the SMAST-G, a large set of items was developed based on a literature review, a critique by a panel of alcoholism treatment professionals, and a focus group discussion by recovering older alcoholics, and further tested on a large heterogeneous sample of older adults (Blow et al., 1992). A combination of item and factor analysis (focusing on DSM-IV criteria for alcohol abuse or dependence) and testing on a stratified sample of older adults with differing types of alcohol use (i.e., current abuse or dependence in treatment, current abuse or dependence not in treatment, history of abuse or dependence, social drinkers, abstainers) further reduced the items to 25 on the MAST-G and 10 on the SMAST-G (Blow et al., 1992).

The CAGE questions were developed from a clinical study undertaken in 1968, but details were not published until much later (Ewing, 1984). The CAGE was tested on a general hospital population using alcoholism diagnoses determined by a chart study, with responses provided by alcoholic patients contrasted with those from patients not identified as such. The cut-off point for the CAGE was determined by testing the assessment on a population of medical and surgical patients selected from a general hospital population. The group included male patients who acknowledged alcoholism or heavy drinking, as well as those denying alcoholism, and non-alcoholics, all confirmed by chart review.
In the development of the SAMI tool, the emphasis was placed on ensuring that the questions were senior-friendly and met the Best Practice guidelines for screening alcohol problems among older adults (Center for Substance Abuse Treatment, 1998). Similar to the CAGE, the scoring rules were based on the differences in responses by different types of drinkers. Yet, in contrast to the CAGE, the subjects used in the SAMI project were not recruited solely from addiction agencies, but rather included a heterogeneous sample of older adults with varying types of drinking habits.

Theoretically, the focus on health care provider feedback throughout the development of the SAMI should increase the likelihood that the tool would be used by health care providers. Despite the better performance of the SAMI compared to the SMAST-G and CAGE, participating health care providers from the Feasibility study did not select the SAMI as their preferred alcohol screening tool. This is surprising, given that the SAMI is the only screening tool to take a senior-friendly approach to screening and was developed closely alongside clinicians.

The primary criticisms of the SAMI by participating clinicians were redundant information from the first question (i.e., symptoms reported were also provided in other parts of the health care provider’s clinical protocol), and easily elicited denial and vague responses from the latter questions. In response to the first point, the symptom checklist in the opening question of the SAMI, although seemingly redundant, may provide seniors who are more susceptible to negative reactions (i.e. denial, defensiveness) with an approach that is familiar and nonthreatening in that they have previous interactions with other health care providers. If the SAMI is part of a complete assessment, redundancy can be minimized by administering the SAMI early in the assessment. In terms of the second point, clinicians may not know ahead of time whether a client will be open or defensive in response to questions about alcohol
consumption, so a gentler approach would be recommended for all clients. This fits with Best Practice guidelines suggesting a non-confrontational approach to assessment (Center for Substance Abuse Treatment, 1998).

Best practices also recommend that older adults are provided with feedback on the connection between their drinking pattern with their physical health during alcohol screening (Center for Substance Abuse Treatment, 1998). The advantage of the SAMI is that it assesses connections between symptoms reported and alcohol consumption with the first and last question, and therefore clinicians can screen for such a connection, even without a complete health assessment. This information may be useful to clinicians as well as other front-line staff that encounter seniors and may not necessarily have clinical training.

The unconventional approach with soft language, open-ended questions, and challenging scoring key of the SAMI may have been off-putting or unfamiliar to health care providers compared to the other screening tools that are already incorporated into their clinical protocol. Education regarding the effectiveness of the SAMI may illustrate that the latter two issues do not impact the identification of problem and at-risk drinkers. The SAMI clearly outperforms the popular CAGE and SMAST-G in identifying a group of older drinkers that are currently experiencing harm or are at risk of harm from their alcohol use.

The SMAST-G was the tool with the highest specificity (96%) and was ranked second best in terms of the AUROC (0.601), but had the poorest sensitivity (14%). The specificity found in this study was comparable to one other study (Moore et al., 2002), and much higher than another study (Johnson-Greene et al., 2009), but the sensitivity was drastically lower than either of these two studies (52% and 75%, respectively). These differences may be explained by the larger sample sizes recruited from clinical sources in the comparison studies: primary care
(Moore et al., 2002) and an inpatient rehabilitation unit (Johnson-Greene et al., 2009). Clinical studies have been shown to have higher rates of alcohol-related problems compared to community studies (Dufour & Fuller, 1995). Thus, validation studies with clinical populations may provide a better assessment of sensitivity by providing more opportunities for problem identification with a greater proportion of problem drinkers. Although affirmative responses for three questions (1, 8 and 9) on the SMAST-G differentiated the dichotomous groups of problem and at-risk drinkers versus non-problem and non-drinkers, the total score did not differentiate between the two groups. The goal of identifying both problem and at-risk drinkers in this study likely negatively impacted the performance of the SMAST-G because the SMAST-G was initially developed to identify seniors diagnosed with alcohol use disorders (i.e., currently diagnosed with alcohol abuse or dependence).

Despite the low sensitivity and AUROC, the SMAST-G was clearly preferred by the health care providers participating in the Feasibility study. They noted that it provided the most useful information, was easier to score than the SAMI, and was the most likely to be incorporated into a clinical protocol. Certainly, the SMAST-G is similar to other yes/no screening tools that these clinicians may be using in their clinical practice (i.e. Geriatric Depression Scale, Geriatric Anxiety Inventory) and, in that way, is a familiar format for clinicians. Feedback from the health care providers suggested that the SMAST-G was able to provide details about an individual’s drinking behaviour (such as reasons for drinking), likely directing potential targets for intervention. For example, a respondent who identifies affirmatively with Question 10 about loneliness may benefit from the provision of community seniors programs by the health care provider. This result may suggest that the health care providers prefer a screening tool that
assesses senior-specific negative consequences of drinking, rather than having a senior-friendly approach.

The one criticism of the SMAST-G that may reduce its utility with a geriatric population is the face-validity of the questions. More specifically, the SMAST-G may be helpful in the screening of seniors that have already recognized and vocalized concerns regarding their drinking. Conversely, for older adults that may be hesitant to share information on their drinking habits for fear of the stigma related to mental health and addictions issues, the SMAST-G’s questions may be too confrontational and upsetting. Ideally, the screening approach for alcohol concerns in older age should be comfortable for all types of drinkers.

The CAGE performed poorly compared to the SAMI and SMAST-G and was not ranked as the highest on any of the performance measures. The sensitivity of 35% was much lower than the sensitivity found in other studies (Morton et al., 1996; Joseph et al., 1995; Buchsbaum et al., 1992; Cherpitel 1998; Philpot et al., 2003; Hinkin et al., 2001; Jones et al., 1993), but slighter better than one study (Naik et al., 1995). Specificity was much better than sensitivity (80%) and comparable to some studies (Joseph et al., 1995; Buchsbaum et al., 1992; Philpot et al., 2003; Jones et al., 1993) and better than others (Morton et al., 1996; Hinkin et al., 2001). The AUROC of 0.549 was lower than has been found in previous studies (Morton et al., 1996; Philpot et al., 2003; Jones et al., 1993). The total score of the CAGE was not statistically different between the dichotomous groups of problem and at-risk drinkers versus non-problem and non-drinkers. The Feasibility study indicated that, although this tool may be the easiest to incorporate into a clinical protocol, health care providers indicated that they would likely require additional screening tools to aid in building rapport with their clients. Given the CAGE lacks a senior-specific approach, it may be less useful in identifying alcohol-related problems as they may be
uniquely manifested among seniors. One of the other disadvantages of the CAGE is that the questions are face-valid and thus, the respondent can determine that the interviewer is attempting to assess for an alcohol-related problem from the first question. Feedback from clinicians have often explained the low rate of alcohol assessment, especially in the initial sessions, to be due to a fear of eliciting denial and impacting rapport with direct questions about alcohol use (CAMH Healthy Aging Project, 2008).

**Strengths and Limitations**

One contribution of the Performance study to the current literature is the additional support for a new screening tool (SAMI) for alcohol use in older age using a Canadian sample. Most of the current literature assesses alcohol screening tools in an American senior sample, often recruited from primary care. Given the lower rate of alcohol-related problems among community seniors, this study is likely tapping into an aspect of the population that may not be regularly assessed for alcohol issues. Including non-drinkers as well as non-problem drinkers is an uncommon practice in cross-validity studies, but enables the study to examine specificity more accurately because of the lower rates of alcohol-related problems in community seniors as compared to primary care or other health-care settings. Although almost 95% of participants reported to be in good or fair health, the average number of contraindicated medical conditions and prescription medications was 1.22 (with a range from 0 to 4).

This study had few exclusion criteria (e.g., cognitive impairment, medical conditions, frequency of alcohol use, place of residence) that other studies often use to exclude potential participants to ensure a homogeneous and healthy sample (Jones et al., 1993; Luttrell et al., 1997; Hirata et al., 2001; Fink et al., 2002a; Fink et al., 2002b; Moore et al., 2002). Although excluding
numerous medical conditions may allow authors to increase validity, it also often limits whether study results can be generalized to the general population.

At the same time, a limitation of the cross-validation study has to be acknowledged. The original concept was to focus solely on a mental health outreach population, as no study had yet examined this new and burgeoning subset of the senior population. Unfortunately, poor initial recruitment numbers necessitated expanding our recruitment strategy on average twice a year from 2006-2009, which included ultimately opening up recruitment to include community seniors. Health care providers were likely not approaching all of their clients to participate, but may have been inviting only those that they felt had alcohol-related problems to participate in the study, despite coaching by the principal investigator that any level of drinking, including abstinence, was appropriate for referral to the Performance study. If this were true for our recruiting mental health outreach staff, it is clear from previous research that health care providers have low sensitivity in identifying alcohol-related problems (Sorocco & Ferrell, 2006; Bercsi et al., 1993), which would lead to low recruitment numbers for this study. It would be interesting to have data on which clients were approached by the recruiting health care providers and which were not and reasons behind these decisions. Noting the challenges in recruiting participants in home care (Miller, McKeever, & Coyte, 2003), all efforts were made to modify the protocol to ease the burden on both recruiting health care workers and participants, such as an easy script to read, point-form inclusion criteria in the letter of information for staff, mailed information forms and consents with self-addressed stamped envelopes, and enabling telephone interviews for both participants and collateral informants.

After opening recruitment to include community seniors, in the end data collection took over five years to recruit the total sample size of 87 individuals over the age of 55. Overall, this
sample included a broad range of age (55-94 years), with the majority of the participants being fairly healthy and well educated. Community seniors likely do not reflect the physical and mental co-morbidities that may exist in individuals recruited from primary care or other health care sources and therefore these results may not be applicable to seniors actively seeking health care services.

The Feasibility study was the first study to obtain feedback from health care providers for whom screening tools were initially designed. Most research examining the effectiveness of screening tools tends to emphasize the validity of screening tools, but fails to address issues encountered by the health care providers for whom these tools were explicitly designed, which may maximize the probability that this clinical research can be translated and incorporated into clinical practice (Bradley, Schlesinger, Webster, Baker, & Inouye, 2004). There is a need for health care buy-in and increased familiarity with any screening tool to ensure successful implementation into clinical practice and providing these health care workers with an opportunity to provide feedback may address this issue. Unfortunately, few geriatric mental health care workers were recruited to participate in the Feasibility study, despite considerable initial interest. Potential health care workers likely felt too busy in their own clinical practice to add to their clinical protocol in order to participate in our study.

There is also a limitation in that the participating health care workers in the Feasibility study were not provided with a standardized approach on what order to use the three screening tools with their clients. It is possible that participating staff may have been biased in which screening tool was selected to use with each client; for example, health care providers may have chosen the shortest screening tools for their more difficult clients or, conversely, used the longer screening tools with their more cooperative clients. A randomized set order of screening tools to
be used in sequential order with their clients or providing staff with screening tools sealed in blank envelopes and having them randomly select one to be used with each client would have addressed this issue.

**Recommendations for Future Work**

Future research can improve upon these two studies in the identification and, potentially, the reduction of alcohol-related problems among seniors. One future study following this line of research could attempt to replicate the Performance study looking at the SAMI, CAGE, and SMAST-G with larger sample sizes, and potentially examining how performance may differ in the clinical geriatric mental health sample as originally intended. With the expansion of effective community-based services for seniors and the focus on home care to keep community seniors in their home and out of long-term care (Health Canada, 2004), it is becoming increasingly important to develop more clinical research to identify health care concerns in the community, leading to early intervention and the avoidance of hospitalization or institutionalization.

Cherpitel (1998) has suggested that alcohol screening tools tend to perform better in clinical populations (ER, primary care) and may provide a better test of effectiveness. Other specific populations of interest to test screening tools for alcohol-related problems may include other clinical samples that have often been ignored in previous studies, such as individuals with cognitive impairment or dementia. Revisions to the protocol for such a study may include excluding the timeframe which most screening tools ask the respondent to consider their answers (i.e., in the last week), a focus on current symptomatology and avoiding lifetime prevalence questions, and potentially assessing the use of screening tools with collateral informants for those individuals that cannot answer for themselves.
This study was fairly limited in scope in terms of assessing reliability and validity of the three screening tools, relying solely on the measures typically reported in cross-validation studies in this field (i.e., sensitivity, specificity, Area Under the Receiver Operating Characteristic curve). Future studies could examine other forms of reliability and validity for the three screening tools (especially for the newer SAMI), such as test-retest reliability, inter-rater reliability, and content validity (i.e., internal consistency). Screening tool scores have also been used to infer treatment effects from group differences between a treatment and control group and an additional study could examine the ability of the CAGE, SMAST-G, and SAMI to assess for change in drinking behaviour pre- and post-intervention.

One other important step in reducing alcohol-related problems in the senior population is related to media reports on alcohol studies. In recent years, numerous studies have extolled the benefits of alcohol (Holahan, Schutte, Brennan, Holahan, Moos, & Moos, 2010; Mukamal, Chung, Jenny, Kuller, Longstreth, Mittleman, Burke, Cushman, Psaty, & Siscovick, 2006; Lee, Sudore, Williams, Lindquist, Chen, & Covinsky, 2009; Grønbæk, Johansen, Becker, Hein, Schnor, Jensen, Vestbo, & Sørensen, 2004). When these studies are reported in newspapers, little emphasis is placed on the warnings made by the researchers. For example, these benefits are typically tested in healthy middle-aged adults. Media reports seldom, if ever, warn of the negative effects of alcohol on an older person’s health. All adults should be able to enjoy alcohol if they choose to, but need to be aware of the beneficial and harmful effects that may arise. More recent studies have attempted to provide a more balanced approach in addressing the health benefits and risks of light-to-moderate drinking (Thakker, 1998; Ferreira & Weems, 2008; O’Keefe, Bybee, & Lavie, 2007). Other researchers have also suggested that it may be time for a randomized controlled trial to assess the effects of changing alcohol consumption at clinical end-points; i.e.,
examining whether middle-aged and older drinkers should reduce their consumption to be consistent with low-risk drinking guidelines for older adults or whether abstainers should increase their consumption to take advantage of the potential health benefits of alcohol (Lang & Melzer, 2009). The challenges in designing and implementing such a study would be the time involved in providing long-term follow-up, the recruitment of a large sample size to demonstrate effects, and the recruitment of individuals willing to participate in a study with potential risks in increasing alcohol use from abstinence.

The low ratings of the SAMI from the Feasibility study were surprising, given how involved health care providers were in the development of the tool (CAMH Healthy Aging Project, 2008). Thus, another useful study could examine the characteristics of screening tools that health care workers would want for their own practice. Such a study may provide additional information on how to maximize the likelihood that health care providers will use available screening tools or aid in the development of a new screening tool. Additional resources may also focus on educating health care workers on the importance of screening all clients for alcohol-related problems and demonstrating the effectiveness of current screening tools, such as the SAMI. Among the case managers and psychologist recruited in this study, all were members of geriatric psychiatric outreach teams. In all likelihood, these teams are experiencing increasing caseloads, given the expansion of the senior cohort but little or no increase in resources to service this group. Given the additional tasks of travel time of the provision of home visits in increasing rural areas on top of their clinical work, let alone completing these assessment tools for the purpose of research, it is not surprising that these health care providers may have preferred a more straight-forward screening tool, such as the SMAST-G. Additionally, it may be interesting to test how the senior-friendly SAMI performs as an opener for discussions on alcohol use,
followed by the clinician-friendly SMAST-G to provide more information about alcohol-related negative consequences and potential targets for harm reduction/intervention.

The development of a multi-dimensional model of effective screening practices for alcohol-related problems among seniors, incorporating the needs of researchers, clinicians, and older adults would be a useful addition to the literature. Researchers identify gaps in the field and attempt to fill those with appropriate studies that address those gaps. Specific to the field of alcohol screening, there needs to be more research assessing the needs of clinicians as well as the general senior population to maximize the likelihood that effective screening takes place in everyday clinical practice.

Clinicians (mostly nurses and physicians) cite a number of barriers to screening and intervention of alcohol problems in the elderly intervention (Duru et al., 2010; Lock, Kaner, Lamont & Bond, 2002; Johansson, Bendtsen & Åkerlind, 2000). These include lack of training (i.e., less than 1% of total teaching hours in medical school are dedicated to substance abuse), lack of clear guidelines about safe levels of alcohol use, low self-efficacy in counseling, skepticism about benefits of counseling, a belief that clients will not be candid about alcohol use, lack of time, negative impact on rapport (by eliciting denial and defensiveness), absence of counseling materials and perceived inadequacy of treatment resources. A standardized screening tool, particularly one that is brief such as the SAMI, would address some of these issues. Additionally, training with a screening tool as well as on brief interventions may promote the practice of clinical identification of alcohol-related problems, especially in areas with little to no treatment options in the community (Aalto, Pekuri & Seppä, 2001). One study suggested that incorporating training that introduces new routines for screening and brief intervention of problem drinkers can significantly improve rates of early detection and treatment (Bendtsen &
Åkerlind, 1999). This included having a project team of three individuals supporting the clinicians for 1-2 months, during which time both general practitioners and nurses were taught how to detect and advise problem drinkers. A future study could develop such training that may address unique issues with seniors in terms of screening and treatment. Additionally, this future study could also obtain feedback from the senior clients in their experience of screening and intervention and may inform clinicians on the accuracy of the perceived client barriers reported in previous studies (Duru et al., 2010; Lock et al., 2002; Johansson et al., 2000).

**Conclusion**

Alcohol misuse is a serious health concern for many seniors, as it can result in adverse consequences, even without the senior’s knowledge. Finding ways to allow health care providers to feel more comfortable asking senior patients about their alcohol use may lead to the detection of more problem drinkers and provide older adults with the opportunity to learn about how their alcohol use can impact their life in a negative way. Given the results from these studies, the SAMI demonstrated the best overall effectiveness in identifying problem and at-risk drinkers and would be the recommended screening tool for clinicians working with older adults, despite its low specificity. The SAMI, in concert with concerned health care workers, could provide a means for improving the lives of seniors by identifying alcohol-related problems and providing an opportunity for intervention.
Chapter 5

References


metabolism” and gastric alcohol dehydrogenase activity. *Journals of Gerontology A: Biological Sciences and Medical Sciences, 50A*(3), B135-B141.


Appendix A
Community flyer
Are you over the age of 55
And are willing to talk about your drinking habits?
We are looking for people who do or do not drink to take part in a research study looking at different ways to talk to seniors about their alcohol use

For more information please call Bonnie Lum at 519-555-5555

All inquiries are welcome!
Appendix B

Letter of information for health care workers (Performance study)
LETTER OF INFORMATION FOR HEALTH CARE WORKERS
(Queen’s University)

NAME OF STUDY: The Performance of Three Brief Assessment Tools for Alcohol Problems in a Geriatric Outreach Population

INVESTIGATORS: Bonnie Lum: (613) 533-3012 Dr. Cella Olmstead: (613) 533-6208
Dr. Duncan Day: (613) 548-5567 ext. 5435

OTHER CONTACTS:
Dr. Vernon. Quinsey, Head of the Psychology Dept: (613) 533-2874
Dr. Albert Clark, Chair of Queen’s University Research Ethics Board: (613) 533-6081

PURPOSE: The objective of this study is to compare the performance of three different screening tools (the SAMI, CAGE, and SMAST-G) to identify alcohol misuse in the senior population. We are asking you to ask your senior clients whether they would be interested in participating in this study. You will then record and relay the names and phone numbers of these interested participants to the Principal Investigator, Bonnie Lum.

PROCEDURE: As part of the study, you will be asked to read the attached script to describe the study and obtain verbal consent to provide the Principal Investigator with the senior’s name and telephone number. Please ensure that the client understands that even after agreeing to be contacted, he/she may still withdraw from the study. A copy of the information sheet (see attached info sheet) MUST be left with the client. Please emphasize that if any questions arise, he/she or any member of his/her family may contact the investigators (on the info sheet). Verbal consent to participate MUST be obtained before relaying any names and telephone numbers to the Principal Investigator. The total amount of time you spend with each client should not take more than five minutes.

ELIGIBILITY: To participate in this study you must be an employee of Geriatric Psychiatry Outreach Team with Providence Continuing Care Centre (PCCC).

CONFIDENTIALITY: Your identity and the client’s identity will remain anonymous. Neither names nor personal identifiers will be used in any reports or publications arising from this study. If you require any further information about the assessment, intervention, or treatment of senior alcohol misuse, please contact the Principal Investigators or call the Ontario Drug and Alcohol Registry of Treatment (DART) toll-free at: 1-800-565-8603.

COMPENSATION: Participation in this study is completely voluntary, with no monetary compensation. You may choose to withdraw from the study at any time. This will not affect any affiliation you might have with Queen’s University or PCCC now or in the future.

RISKS: There are few anticipated risks involved in participating in this study, including eliciting feelings of shame and embarrassment on the part of the patient.
**BENEFITS:** There are no personal benefits specifically to the participants, but knowledge may be gained about how to assess an older person with alcohol misuse issues. This research may greatly help with early identification, which then could lead to intervention and may lead to benefits, such as preventing serious falls.
LETTER OF INFORMATION FOR HEALTH CARE WORKERS
(Western University)

NAME OF STUDY: The Performance of Three Brief Assessment Tools for Alcohol Problems in a Senior Population

STUDY INVESTIGATORS:
Bonnie Lum, M.Sc. (Ph.D candidate)
Principal investigator
(519) 555-5555

Dr. Jennifer Fogarty, Ph.D, C. Psych.
Co-investigator
Assistant Professor, Psychiatry and Geriatric Medicine
School of Medicine
University of Western Ontario
(519) 685-4000 ext. 42557

Dear Participant,

We are asking you to take part because you are employed by a Geriatric Mental Health Outreach team or at the Ambulatory Clinic at Parkwood Hospital. You should understand that participation in this study is completely voluntary, with no monetary compensation. You may refuse to participate, refuse to answer any questions or withdraw from the study at any time with no effect on your employment status.

The objective of this study is to compare the performance of three different screening tools (the Senior Alcohol Misuse Indicator, CAGE, and Shortened Michigan Alcoholism Screening Test – Geriatric version) to identify alcohol misuse in the senior population. We are asking you to ask your senior clients whether they would be interested in participating in this study. You will then record and relay the names and phone numbers of these interested participants to the Principal Investigator, Bonnie Lum.

The purpose of this letter is to provide you with the information you require to make an informed decision on participating in this research. It is important for you to understand why the study is being conducted and what it will involve. Please contact Bonnie Lum at (519) 555-5555 if you have any questions about the study.

As part of the study, you will be asked to read the attached script to describe the study and obtain verbal consent to provide the Principal Investigator with the senior’s name and telephone number. Please ensure that the client understands that even after agreeing to be contacted, he/she may still withdraw from the study. A copy of the invitation letter (see attached info sheet) MUST be left with the client. Please emphasize that if any questions arise, he/she or any member of his/her family may contact the investigators (on the
information sheet). Verbal consent to participate MUST be obtained before relaying any names and telephone numbers to the Principal Investigators. The total amount of time you spend with each client should not take more than five minutes.

In order to participate in this study you must be an employee of Geriatric Mental Health Outreach Team with London Health Sciences Centre or St. Joseph’s Health Care (Parkwood or Regional Mental Health Care – London, RMHC-L) or the Ambulatory Clinic at Parkwood Hospital. We are looking for 80 participants for the study, and are recruiting from four sites (20 from London Health Sciences Centre, 15 from Parkwood, 5 from Regional Mental Health Care – London, RMHC-L, and 40 from Third Age Outreach Program and the Kiwanis Seniors Center). Participants should be 55 years of age or older and have the ability to speak and read English, and answer questions.

Your identity and the client’s identity will remain confidential. Neither names nor personal identifiers will be used in any reports or publications arising from this study. There are few anticipated risks involved in participating in this study, including eliciting feelings of shame and embarrassment on the part of the patient. If you require any further information about the assessment, intervention, or treatment of senior alcohol misuse or dealing with any negative feelings elicited by your patient, please contact the Principal Investigators, Addiction Services of Thames Valley at: (519) 673-3242 or call the Ontario Drug and Alcohol Registry of Treatment (DART) toll-free at: 1-800-565-8603. There are no personal benefits specifically to you, but knowledge may be gained about how to assess the use of alcohol in older individuals.

If you have any questions about your rights as a research participant or the conduct of the study you may contact:

**Dr. D. Hill, Director, Scientific Director**

Lawson Health Research Institute  (519) 646-6100 ext. 64672

_This letter is for you to keep. Thank you for your time!_
Appendix C

Standardized script for health care workers
**Invitation to Participate in the Thesis Project**

This script will help you to ensure that what you say to the patient(s) with respect to the study is uniform and accurate. Please ensure that the patient understands the main points of the script.

“Queen’s University is conducting a study looking at different ways to ask seniors about their alcohol use. They are looking for seniors who drink alcohol, even if it is very little or none at all, to answer some questions about their drinking habits. It should take no more than one hour and can be done in person or over the phone. Your answers will be anonymous and your name will never be used in any publication. If you are not interested in taking part, this will not affect the services that you receive from the hospital. If you are interested or want to hear more about the study, I can give your name and phone number to the study coordinator, a graduate student from Queen’s University. Even after you are contacted by the study coordinator, you can still decline to take part in the study. Giving your name and phone number does not mean you have to be in the study. Do you have any questions about what I’ve just said? Are you interested in being part of the study?”

Who is eligible to participate in this study?

**INCLUSION CRITERIA for PATIENT**

- 55 years of age or older
- Cognitively capable of answering questions
- Drinks any type of alcohol
- Even as little as once a year for religious occasions

**EXCLUSION CRITERIA for PATIENT**

- None
Appendix D

Client invitation letter
INVITATION FOR A RESEARCH STUDY
(Queen’s University)

NAME OF STUDY: The Performance of Three Brief Assessment Tools for Alcohol Problems in a Geriatric Outreach Population

Dear Participant,

As we try to improve our knowledge when working with seniors, we are comparing different questionnaires that will be helpful in learning more about assessing alcohol use in the senior population. We are looking for volunteers from all different backgrounds, cultures, and levels of alcohol use (including teetotalers and non-drinkers) to take part in our research project. Please contact Bonnie Lum at (613) 533-3012 if you have any questions about the study.

You should understand that participation in this study is completely voluntary, with no monetary compensation. If you consent today, you are only allowing the Principal Investigator to call you to discuss the study further. You can still withdraw from the study at any time, and this will not affect services provided by Providence Continuing Care Centre nor any relationship you may have with Queen’s University now or in the future.

As a participant, you will be asked about your alcohol use using three screening tools (the SAMI, CAGE, SMAST-G), followed by a longer interview. All together, it should not take more than 1.5 hours to complete. You will also be asked to provide the name of someone close to you (family, friend, or neighbor) who will be able to give us similar information about your drinking habits (this is optional). Your identity will remain anonymous in this study, except to the Principal Investigator, and will not be used in any reports or publications arising from this study.

There are no risks involved in participating in this study. There are no personal benefits specifically to you, but knowledge will be gained about how to assess the use of alcohol in older individuals. Thank you for your time!

Bonnie Lum (613) 533-3012
Dr. Cella Olmstead (613) 533-6208
Dr. Vernon Quinsey, (613) 533-2874
   Head of the Psychology Department
Dr. Albert Clark, (613) 533-6081
   Chair of Queen’s University Research Ethics Board
INVITATION FOR A RESEARCH STUDY  
(Western University)

NAME OF STUDY: The Performance of Three Brief Assessment Tools for Alcohol Problems in a Senior Population

STUDY INVESTIGATORS:
Bonnie Lum, M.Sc. (Ph.D candidate)
Principal investigator
(519) 555-5555

Dr. Jennifer Fogarty, Ph.D, C. Psych.
Co-investigator
Assistant Professor, Psychiatry and Geriatric Medicine
School of Medicine
University of Western Ontario
(519) 685-4000 ext. 42557

Dear Participant,

You are being invited to participate in a research study looking at measuring the performance of three alcohol screening tools that will be helpful in assessing alcohol use in the senior population. We are looking for volunteers from all different backgrounds, cultures, and levels of alcohol use (including individuals who do or do not drink any quantity of alcohol) to take part in our research project. We are asking you to take part because you receive care from a Geriatric Mental Health team member or the Ambulatory Clinic at Parkwood Hospital.

We are looking for 80 participants for the study, and are recruiting from four sites (20 from London Health Sciences Centre, 15 from Parkwood, 5 from Regional Mental Health Care – London, RMHC-L, and 40 from Third Age Outreach Program and the Kiwanis Seniors Center). Participants should be 55 years of age or older and have the ability to speak and read English, and answer questions.

You should understand that participation in this study is completely voluntary, with no monetary compensation. You may refuse to participate, refuse to answer any questions or withdraw from the study at any time with no effect on your current or future care.

The purpose of this letter is to provide you with the information you require to make an informed decision on participating in this research. It is important for you to understand why the study is being conducted and what it will involve. Please contact Bonnie Lum at (519) 555-5555 if you have any questions about the study.

As a participant, you will be asked about your alcohol use using three screening tools (the Senior Alcohol Misuse Indicator, CAGE, Shortened Michigan Alcoholism Screening Test – Geriatric version), followed by a longer interview with Bonnie Lum. All together, it should not take more than 35 minutes to complete. This interview can take place over
the phone or in person (at an agreed-upon location). You will also be asked to provide the name of someone close to you (family, friend, or neighbor) who will be able to give us similar information about your drinking habits (this is optional). Your family member or friend does not have to participate in the study even if you choose to participate. Please ensure that you have received their permission to pass along their contact information to the researcher.

It is important to know that your identity will remain anonymous. All answers will be confidential between you and your health care worker, as determined by your agency’s codes of conduct. Each participant will be given a numerical code on all files. Therefore your name will not be used in any reports or publications arising from this study. However, it is important to note that the original signed research consent form and the data that will follow will be included in the file. Your research records will be stored in the following manner: locked in a cabinet in an office; files will be viewed only by members of the research team and they will be destroyed 5 years after publication. Representatives of The University of Western Ontario Health Sciences Research Ethics Board may contact you or require access to your study-related records to monitor the conduct of the research. You do not waive any legal rights by signing the consent form.

There are few risks involved in participating in this study, although feelings of shame and embarrassment may be elicited. If you require any further information about the of senior alcohol misuse or dealing with any negative feelings from this interview, please contact the Principal Investigators, Addiction Services of Thames Valley at: (519) 673-3242 or call the Ontario Drug and Alcohol Registry of Treatment (DART) toll-free at: 1-800-565-8603. There are no personal benefits specifically to you, but knowledge may be gained about how to assess the use of alcohol in older individuals.

If you have any questions about your rights as a research participant or the conduct of the study you may contact:

Dr. D. Hill, Director, Scientific Director
Lawson Health Research Institute (519) 646-6100 ext. 64672

This letter is for you to keep. Thank you for your time!
Appendix E
Letter of information for clients (Performance study)
LETTER OF INFORMATION FOR CLIENTS (PERFORMANCE STUDY)
(Queen’s University)

NAME OF STUDY: The Performance of Three Brief Assessment Tools for Alcohol Problems in a Geriatric Outreach Population

Dear Participant,

As we try to improve our knowledge when working with seniors, we are comparing different questionnaires that will be helpful learning more about assessing alcohol use in the senior population. We are looking for volunteers from all different backgrounds, cultures, and levels of alcohol use (including teetotalers) to take part in our research project. Please contact Bonnie Lum at (613) 533-3012 if you have any questions about the study.

You should understand that participation in this study is completely voluntary, with no monetary compensation. You can still withdraw from the study at any time, and this will not affect services provided by Providence Continuing Care Centre nor any relationship you may have with Queen’s University now or in the future.

As a participant, you will be asked about your alcohol use using three alcohol screening tools, followed by an interview about your alcohol use, medical history, and medication use. All together, it should not take more than 1.5 hours to complete. You will also be asked to provide the name of someone close to you (family, friend, or neighbor) who will be able to give us similar information about your drinking habits (this is optional). Your identity will remain anonymous in this study, except to the Principal Investigator, and will not be used in any reports or publications arising from this study.

There are few risks involved in participating in this study, although feelings of shame and embarrassment may be elicited when health care workers raise issues of alcohol use. There are no personal benefits specifically to you, but knowledge may be gained about how to assess the use of alcohol in older individuals. Thank you for your time!

Bonnie Lum (613) 533-3012
Dr. Cella Olmstead (613) 533-6208
Dr. Duncan Day (613) 548-5567 ext. 5435
Dr. Vernon Quinsey (613) 533-2874
   Head of the Psychology Department
Dr. Albert Clark (613) 533-6081
   Chair of Queen’s University Research Ethics Board
NAME OF STUDY: The Performance of Three Brief Assessment Tools for Alcohol Problems in a Senior Population

STUDY INVESTIGATORS:
Bonnie Lum, M.Sc. (Ph.D candidate)
Principal investigator
(519) 555-5555

Dr. Jennifer Fogarty, Ph.D, C. Psych.
Co-investigator
Assistant Professor, Psychiatry and Geriatric Medicine
School of Medicine
University of Western Ontario
(519) 685-4000 ext. 42557

Dear Participant,

You are being invited to participate in a research study looking at measuring the performance of three alcohol screening tools that will be helpful in assessing alcohol use in the senior population. We are looking for volunteers from all different backgrounds, cultures, and levels of alcohol use (including teetotalers) to take part in our research project.

We are looking for 80 participants for the study, and are recruiting from four sites (20 from London Health Sciences Centre, 15 from Parkwood, 5 from Regional Mental Health Care – London, RMHC-L, and 40 from Third Age Outreach Program, the Kiwanis Seniors Center, and the Center for Activity and Aging). Participants should be 55 years of age or older and have the ability to speak and read English, and answer questions.

The purpose of this letter is to provide you with the information you require to make an informed decision on participating in this research. It is important for you to understand why the study is being conducted and what it will involve. Please contact Bonnie Lum at (519) 555-5555 if you have any questions about the study.

As a participant, you will be asked about your alcohol use using three screening tools (the SAMI, CAGE, SMAST-G), followed by a longer interview. All together, it should not take more than 35 minutes to complete. This interview can take place over the phone or in person (at an agreed-upon location). You will also be asked to provide the name of someone close to you (family, friend, or neighbor) who will be able to give us similar information about your drinking habits (this is optional).

It is important to know that your identity will remain anonymous. All answers will be confidential between you and your health care worker, as determined by your agency’s codes of conduct. Each participant will be given a numerical code on all files. Therefore
your name will not be used in any reports or publications arising from this study. However, it is important to note that the original signed research consent form and the data that will follow will be included in the file. Your research records will be stored in the following manner: locked in a cabinet in an office; files will be viewed only by members of the research team and they will be destroyed 5 years after publication.

We are asking you to take part because you are involved with the Third Age Outreach Program, the Kiwanis Seniors Center, or the Center for Activity and Aging. You should understand that participation in this study is completely voluntary, with no monetary compensation. You may refuse to participate, refuse to answer any questions or withdraw from the study at any time with no effect on your future with the Third Age Outreach Program, the Kiwanis Seniors Center, or the Center for Activity and Aging.

There are few risks involved in participating in this study, although feelings of shame and embarrassment may be elicited. There are no personal benefits specifically to you, but knowledge may be gained about how to assess the use of alcohol in older individuals.

If you have any questions about your rights as a research participant or the conduct of the study you may contact:

**Dr. D. Hill, Director, Scientific Director**

Lawson Health Research Institute (519) 646-6100 ext. 64672

*This letter is for you to keep. Thank you for your time!*
Appendix F

Client consent form
The Performance of Brief Alcohol Screening Tools: Interview
(Queen’s University)

CONSENT FORM

I, _________________________________________, hereby consent to participate in a research study on the assessment of senior alcohol use that is being conducted by Bonnie Lum, Dr. Cella Olmstead, and Dr. Duncan Day at Queen’s University. I have read the Information sheet for the study named “The Performance of Three Brief Assessment Tools for Alcohol Problems in a Geriatric Outreach Population.” My questions, if any, have been answered to my satisfaction, so that I understand the procedures to be followed in the study.

I am aware that this study will not benefit me specifically, but knowledge will be gained about how to assess an older person with regards to alcohol use. No personal information will be disclosed in any resulting publication or presentation. Neither my identity nor any personal information will be available to anyone other than the investigators. I understand that I may withdraw from this study at any point in time without penalty. This study is completely voluntary and I will not receive monetary compensation.

If I have any questions or concerns, I may call Bonnie Lum at (613) 533-3012, Dr. Cella Olmstead at (613) 533-6208, Dr. Duncan Day at (613) 548-5567 ext. 5435, Dr. Vernon Quinsey, Head of the Psychology Department at (613) 533-2874, or Dr. Albert Clark, Chair of Queen’s University Research Ethics Board at (613) 533-6081.

Signature of Participant:

Name: __________________________________________________________________

Signature: _______________________________________________________________

Date: ___________________________________________________________________

Signature of Witness:

Name: __________________________________________________________________

Signature: _______________________________________________________________
The Performance of Brief Alcohol Screening Tools: Interview
(Western University)

CONSENT FORM

I have read the Letter of Information, have had the nature of the study explained to me and I agree to participate. All questions have been answered to my satisfaction.

Print Name of Participant: __________________________________________________

Signature of Participant: __________________________________________________

Date: ___________________________________________________________________

Person Obtaining Informed Consent: _________________________________________
Appendix G

CAGE
CAGE

1. Have you ever felt you should Cut down on your drinking?
2. Have people Annoyed you by criticizing your drinking?
3. Have you ever felt bad or Guilty about your drinking?
4. Have you ever had a drink first thing in the morning to steady your nerves or to get rid of a hangover (Eye opener)?

Scoring:
Item responses on the CAGE are scored 0 or 1, with a higher score an indication of alcohol problems. A total score of 2 or greater is considered clinically significant in the adult population. A total score of 1 or greater is considered clinically significant in the senior population.
Appendix H
Short Michigan Alcoholism Screening Test – Geriatric version
(SMAST-G)
SHORT MICHIGAN ALCOHOL SCREENING TEST – GERIATRIC VERSION
(SMAST-G)

1. “When talking with others, do you ever underestimate how much you actually drink?”
2. “After a few drinks, have you sometimes not eaten or been able to skip a meal because you don’t feel hungry?”
3. “Does having a few drinks help decrease your shakiness or tremors?”
4. “Does alcohol sometimes make it hard for you to remember parts of the day or night?”
5. “Do you usually take a drink to relax or calm your nerves?”
6. “Do you drink to take your mind off your problems?”
7. “Have you ever increased your drinking after experiencing a loss in your life?”
8. “Has a doctor or nurse ever said they were worried or concerned about your drinking?”
9. “Have you ever made rules to manage your drinking?”
10. “When you feel lonely, does having a drink help?”

SCORING
2 or more positive responses is indicative of an alcohol abuse problem (range of scores of 0-10 possible).
Appendix I
Senior Alcohol Misuse Indicator (SAMI)
SENIOR ALCOHOL MISUSE INDICATOR (SAMI)

1a) Have you recently (in the last few months) experienced problems with any of the following (if yes, please check box):

- Changes in sleep?
- Changes in appetite or weight?
- Drowsiness?
- Dizziness?
- Poor balance?
- Falls?
- Difficulty remembering things?

1b) Have you recently (in the last few months) experienced problems with any of the following (if yes, please check box):

- Feelings of sadness?
- Lack of interest in daily activities?
- Feelings of worthlessness?
- Loneliness?
- Feelings of anxiety?

2. Do you enjoy wine/beer/spirits? Which do you prefer?

3. As your life has changed, how has your use of [selected] wine/beer/spirits changed?

__________________________________________________________________

5. You mentioned that you have difficulties with… [from answers to questions 1a) and b)]. I am wondering if you think [selected] that wine/beer/spirits might be connected?

- Yes
- No
**Scoring Key for SAMI**

Giving any respondent one point for any of the following four responses, a score of 1 or above would flag the respondent as a possible at-risk or problem drinker.

**Single responses:**
- Question #2: Enjoying any or all of wine/beer spirits OR Enjoying a combination of two from wine/beer/spirits
- Question #3: Increasing alcohol consumption from when younger
- Question #4: Yes, connection between alcohol and health

**Multiple responses:**
- Questions #2 and 3: Admitting enjoying alcohol AND Not changing alcohol consumption
- Questions #1, 2, and 3: Experiencing 5+ symptoms AND Admitting enjoying alcohol AND Currently consuming alcohol
Appendix J
Demographic information
DEMOGRAPHIC INFORMATION

Date of Birth: ________________

Highest Education Level Attained: (How far did you get in school?)
Elementary School/Junior High ________________
High School ________________
College/University ________________
Postgraduate ________________

Current Employment Status: (What kind of work do you do?)
Retired ________________ Self-employed ________________
Full-time ________________ Part-time ________________
Homemaker ________________ Welfare ________________
Not employed ________________ Refused ________________
Other ________________

Past Employment: (What kind of work (in/outside home) did you do most in your life?)
Retired ________________ Self-employed ________________
Full-time ________________ Part-time ________________
Homemaker ________________ Welfare ________________
Not employed ________________ Refused ________________
Other ________________

Current Living Arrangements:
Spouse/Partner ________________ Children ________________
Other Relative ________________ Friend ________________
Alone ________________ Other ________________
Refused ________________

Family Relationships:
Spouse/Partner ____________________________________________
Children ________________________________________________
Other Relatives ____________________________________________

Health Status:
Excellent __________ Good __________ Poor __________
Short-term disability ________________ Long-term disability ________________

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Presenting Problem: (What major problem are you having trouble with?)

______________________________________________________________________________
______________________________________________________________________________
______________________________________________________________________________
______________________________________________________________________________
______________________________________________________________________________
______________________________________________________________________________

Services Received: (GP, physio, therapy, Meals on Wheels, HSW, other HCW in home?)

______________________________________________________________________________
______________________________________________________________________________
______________________________________________________________________________
______________________________________________________________________________
______________________________________________________________________________
______________________________________________________________________________
Appendix K
Medical history form
MEDICAL HISTORY FORM

Prescription Medications: (What meds are you on? What are they for?)
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

Over-the-Counter Medications: (Do you use vitamins, herbals, other alternative meds?)
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

Major Current Conditions/Problems: (Hospitalizations? Treatment? Concerns of Dr. + self?)
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

Family Conditions/Problems: (How is your relationship with your family? Health?)
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

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Conditions to look for:

**EVER**
High blood pressure
Congestive heart failure
Diabetes
Osteoporosis
Cirrhosis or another liver condition
Gout
Memory disorder or dementing illness

**PAST TWELVE MONTHS**
Hepatitis
Gastritis
Ulcer of the stomach or small intestine
Pancreatitis
Depression, anxiety or another emotional or mental health problem

Medications to look for:

**ONCE A WEEK**
Sedatives or sleeping medicines: Valium, Dalman, Librium, Xanax, Ativan, Halcion, chloral hydrate, Ambien
Traquilizers: Thorazine, Mellaril, Haldol
Narcotic medications: Darvon, Demerol, codeine, morphine, Percocet, Vicodin

**EVERYDAY OR ALMOST EVERYDAY**
Ulcer and stomach medicines: Zantac, Tagamet, Prilosec, Pepcid
Arthritis and pain medicines: Motrin (Ibuprofen), Voltaren, Clinoril, Naprosyn, Tylenol, Advil
Blood pressure medications: Cardizem, Procardia, Vasotec, Letensin, Atenolol, Inderal, water pills
Nitrates: Isordil, Nitropatch
Other heart medicines: Digoxin, Lasix
Coumadin (warfarin)
Seizure medicines: Tegretol, Dilantin, phonebarbital
Depression medicines: Elavil (amitriptyline), Pamelor (nortriptyline), Paxil, Prozac, Zoloft
Nonprescription Medicines: Tylenol PM, Benadryl, Chlor-trimeton
Prescription antihistamines: Claritin, Zyrtec, Allegra
Appendix L
Structured Clinical Interview for the Diagnostic and Statistical Manual, 4th edition (SCID), Alcohol module E
INSTRUCTIONS: Complete the alcohol portion of the SCID-E at weeks 16, 52, and 68.

PLEASE KEEP PAGES TOGETHER.

Time Frames at Follow-up:

- For follow-up interviews (weeks 16, 52, and 68), the time frame for the interview would be since the most recent assessment.

Note: If at week 16 a patient no longer meets dependence criteria but does meet abuse criteria answer the abuse questions and then move on to the dependence questions and remission specifiers. Answer the abuse questions for the time period in question even if completing the remission specifiers.
E. SUBSTANCE USE DISORDERS

ALCOHOL USE DISORDERS (LIFETIME)

IF SCREENING QUESTION #1 ANSWERED “NO,” CHECK HERE ___ AND SKIP TO *NON-ALCOHOL SUBSTANCE USE DISORDERS,* E. 10

IF SCREENER NOT USED, OR IF QUESTION #1 IS ANSWERED “YES,” CONTINUE:

What are your drinking habits like? (How much do you drink?) (Has there ever been a time in your life when you had five or more drinks on one occasion?)

When in your life were you drinking the most? (How long did that period last?) RECORD DATE OF HEEVIEST USE AND DESCRIBE PATTERN:

______________________
______________________

During that time . . .

how often were you drinking?

what were you drinking? how much?

During that time . . .

did your drinking cause problems for you?

did anyone object to your drinking?

IF ALCOHOL DEPENDENCE SEEMS LIKELY, CHECK HERE ___ AND SKIP TO *ALCOHOL DEPENDENCE,* E. 4.

IF ANY INCIDENTS OF EXCESSIVE DRINKING OR ANY EVIDENCE OF ALCOHOL-RELATED PROBLEMS, CONTINUE WITH *ALCOHOL ABUSE,* ON NEXT PAGE.

IF NEVER HAD ANY INCIDENTS OF EXCESSIVE DRINKING AND THERE IS NO EVIDENCE OF ANY ALCOHOL-RELATED PROBLEMS, SKIP TO *NON-ALCOHOL SUBSTANCE USE DISORDERS,* E. 10.
**LIFETIME ALCOHOL ABUSE**

Let me ask you a few more questions about your drinking habits.

Have you ever missed work or school because you were intoxicated, high, or very hung over? (How often? What about doing a bad job at work or failing courses at school because of your drinking?)

IF NO: What about not keeping your house clean or not taking proper care of your children because of your drinking? (How often?)

IF YES TO EITHER OF ABOVE: How often? (Over what period of time?)

Did you ever drink in a situation in which it might have been dangerous to drink at all? (Did you ever drive while you were really too drunk to drive?)

IF YES AND UNKNOWN: How many times? (When?)

Has your drinking gotten you into trouble with the law?

IF YES AND UNKNOWN: How often? (Over what period of time?)

IF NOT ALREADY KNOWN: Has your drinking caused problems with other people, such as with family members, friends, or people at work? (Have you ever gotten into physical fights when you were drinking? What about having bad arguments about your drinking?)

IF YES: Did you keep on drinking anyway? (Over what period of time?)

ALCOHOL ABUSE CRITERIA

A. A maladaptive pattern of alcohol use, leading to clinically significant impairment or distress, as manifested by three (or more) of the following occurring within a twelve month period:

1. Recurrent alcohol use resulting in a failure to fulfill major role obligations at work, school, or home (e.g., repeated absences or poor work performance related to alcohol use; alcohol-related absences, suspensions, or expulsions from school; neglect of children or household).

2. Recurrent alcohol use in situations in which it is physically hazardous (e.g., driving an automobile or operating a machine when impaired by alcohol use).

3. Recurrent alcohol-related legal problems (e.g., arrests for alcohol-related disorderly conduct).

4. Continued substance use despite having persistent or recurrent social or inter-personal problems caused or exacerbated by the effects of the substance (e.g., arguments with spouse about consequences of intoxication, physical fights).

?=inadequate information 1=absent or false 2=subthreshold 3=threshold or true
AT LEAST ONE “A” ITEM CODED “3”

IF NO POSSIBILITY OF PHYSIOLOGICAL DEPENDENCE OR COMPULSIVE USE, GO TO *NON-ALCOHOL USE DISORDERS*, E. 10. OTHERWISE, CONTINUE ASKING ABOUT DEPENDENCE, E. 4.

IF ALCOHOL DEPENDENCE QUESTIONS HAVE ALREADY BEEN ASKED (I.E., DEPENDENCE SEEMED LIKELY AFTER ALCOHOL SCREENING ON E. 1, BUT FULL CRITERIA WERE NOT MET), GO TO *ALCOHOL ABUSE CHRONOLOGY*, E. 6.

IF ALCOHOL DEPENDENCE QUESTIONS HAVE NOT YET BEEN EVALUATED, CONTINUE WITH *ALCOHOL DEPENDENCE*, ON PAGE E. 4.
ALCOHOL DEPENDENCE

I’d now like to ask you some more questions about your drinking habits.

ALCOHOL DEPENDENCE CRITERIA

A maladaptive pattern of alcohol use, leading to clinically significant impairment or distress, as manifested by three (or more) of the following occurring at any time in the same twelve month period:

NOTE: CRITERIA FOR ALCOHOL DEPENDENCE ARE NOT IN DSM-IV ORDER

Have you often found that when you started drinking you ended up drinking much more than you were planning to?

IF NO: What about drinking for a much longer period of time than you were planning to?

Have you tried to cut down or stop drinking alcohol?

IF YES: Did you ever actually stop drinking altogether?

(How many times did you try to cut down or stop altogether?)

IF NO: Did you want to stop or cut down? (Is this something you kept worrying about?)

Have you spent a lot of time drinking, being high, or hung over?

(5) a great deal of time is spent in activities necessary to obtain alcohol, use alcohol, or recover from its effects

Have you had times when you would drink so often that you started to drink instead of working or spending time at hobbies or with your family or friends, or engaging in other important activities, such as sports, gardening, or playing music?

(6) important social, occupational, or recreational activities given up or reduced because of alcohol use

? = inadequate information  1 = absent or false  2 = subthreshold  3 = threshold or true
IF NOT ALREADY KNOWN: Has your drinking ever caused any psychological problems like making you depressed or anxious, making it difficult to sleep, or causing “blackouts?”

IF NOT ALREADY KNOWN: Has your drinking ever caused significant physical problems or made a physical problem worse?

IF YES TO EITHER OF ABOVE: Did you keep on drinking anyway?

Have you found that you needed to drink a lot more in order to get the feeling you wanted than you did when you first started drinking?

IF YES: How much more?

IF NO: What about finding that when you drank the same amount, it had much less effect than before?

Have you ever had any withdrawal symptoms when you cut down or stopped drinking like . . .

. . . sweating or racing heart?

. . . hand shakes?

. . . trouble sleeping?

. . . feeling nauseated or vomiting?

. . . feeling agitated?

. . . or feeling anxious?

(How about having a seizure or seeing, feeling, or hearing things that weren’t really there?)

IF NO: Have you ever started the day with a drink, or did you often drink or take some other drug or medication to keep yourself from getting the shakes or becoming sick?

(7) alcohol use is continued despite knowledge of having a persistent or recurrent physical or psychological problem that is likely to have been caused or exacerbated by alcohol (e.g., continued drinking despite recognition that an ulcer was made worse by alcohol consumption)

(1) tolerance, as defined by either of the following:

(a) a need for markedly increased amounts of alcohol to achieve intoxication or desired effect

(b) markedly diminished effect with continued use of the same amount of alcohol

(2) withdrawal, as manifested by either (a) or (b):

(a) at least TWO of the following:

- - autonomic hyperactivity (e.g., sweating or pulse rate greater than 100)

- - increased hand tremor

- - insomnia

- - nausea or vomiting

- - psychomotor agitation

- - anxiety

- - grand mal seizures

- - transient visual, tactile, or auditory hallucinations or illusions

(b) alcohol (or a substance from the sedative / hypnotic / anxiolytic class) taken to relieve or avoid withdrawal symptoms

?=inadequate information 1=absent or false 2=subthreshold 3=threshold or true
IF UNKNOWN: When did (SXS CODED “3” ABOVE) occur? (Did they all happen around the same time?)  

AT LEAST THREE DEPENDENCE ITEMS CODED “3” AND ITEMS OCCURRED WITHIN THE SAME TWELVE MONTH PERIOD

IF ALCOHOL ABUSE QUESTIONS (PAGES E.1-E.3) HAVE NOT YET BEEN ASKED, GO TO PAGE E.1 AND CHECK FOR ABUSE.

IF ABUSE QUESTIONS HAVE BEEN ASKED AND ABUSE IS PRESENT, CODE “3.” OTHERWISE, IF QUESTIONS HAVE BEEN ASKED AND ABUSE IS NOT PRESENT, GO TO *NON-ALCOHOL USE DISORDERS,* E. 10

*ALCOHOL ABUSE CHRONOLOGY*

How old were you when you first had (ABUSE SXS CODED “3”)?  

Age at onset of Alcohol Abuse (CODE 99 IF UNKNOWN)

IF UNCLEAR: During the past month, have you had anything at all to drink?  

Criteria for Alcohol Abuse met at any time in past month

IF YES: Tell me more about it. (Has your drinking caused you any problems?)

? = inadequate information  
1 = absent or false  
2 = subthreshold  
3 = threshold or true
*CHRONOLOGY FOR DEPENDENCE*

How old were you when you first had (LIST OF ALCOHOL DEPENDENCE OR ABUSE SXS CODED “3”)?

Age at onset of Alcohol Dependence or Abuse (CODE 99 IF UNKNOWN)

IF UNCLEAR: During the past month, have you had anything at all to drink?

IF YES: Tell me more about it. (Has your drinking caused you any problems?)

Full criteria for Alcohol Dependence met at any time in past month (or never had a month without symptoms of Dependence or Abuse since onset of Dependence)

Indicate if:

1 - With Physiological Dependence  (current evidence of tolerance or withdrawal)

2 - Without Physiological Dependence  (no current evidence of tolerance or withdrawal)

NOTE SEVERITY OF DEPENDENCE FOR WORST WEEK OF PAST MONTH
(Additional questions about the effect of alcohol on social and occupational functioning may be necessary.)

1 Mild: Few, if any, symptoms in excess of those required to make the diagnosis, and the symptoms result in no more than mild impairment in occupational functioning or in usual social activities or relationships with others (or criteria met for Dependence in the past and some current problems).

2 Moderate: Symptoms or functional impairment between “mild” and “severe.”

3 Severe: Many symptoms in excess of those required to make the diagnosis, and the symptoms markedly interfere with occupational functioning or with usual social activities or relationships with others.

GO TO NON-ALCOHOL USE DISORDERS, E. 10

*=inadequate information 1=absent or false 2=subthreshold 3=threshold or true
*REMISSION SPECIFIERS FOR DEPENDENCE*

THE FOLLOWING REMISSION SPECIFIERS CAN BE APPLIED ONLY AFTER NO CRITERIA FOR DEPENDENCE OR ABUSE HAVE BEEN MET FOR AT LEAST ONE MONTH IN THE PAST.

Note: These specifiers do not apply if the individual is On Agonist Therapy or In a Controlled Environment (next page).

Number of months prior to interview when last had some problems with Alcohol

1 Early Full Remission: For at least one month, but less than twelve months, no criteria for Dependence or Abuse have been met.

2 Early Partial Remission: For at least one month, but less than twelve months, one or more criteria for Dependence or Abuse have been met (but the full criteria for Dependence have not been met).

3 Sustained Full Remission: None of the criteria for Dependence or Abuse have been met at any time during a period of twelve months or longer.

4 Sustained Partial Remission: Full criteria for Dependence have not been met for a period of twelve months or longer; however, one or more criteria for Dependence or Abuse have been met.
Check ____ if **On Agonist Therapy:** The individual is on a prescribed agonist medication (e.g., valium) and no criteria for Dependence or Abuse have been met for that class of medication for at least the past month (except tolerance to or withdrawal from, the agonist). This category also applies to those being treated for Dependence using a partial agonist or a mixed agonist/antagonist.

Check ____ if **In a Controlled Environment:** The individual is in an environment where access to alcohol and controlled substances is restricted and no criteria for Dependence or Abuse have been met for at least the past month. Examples are closely-supervised and substance-free jails, therapeutic communities, and locked hospital units.

?=inadequate information  1=absent or false  2=subthreshold  3=threshold or true
Appendix M

Contact information form
CONTACT INFORMATION FORM

Name of Contact: _____________________________________________

Relationship: _______________________________________________

Phone Number: ______________________________________________

Other Information:
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

I, ____________________________________________, hereby allow the researchers for this study to speak to my contact and ask them questions about my alcohol use.

Signature of Participant

Name: _________________________________________________________

Signature: _____________________________________________________

Date: _________________________________________________________
Appendix N

Contact invitation letter
CONTACT INVITATION LETTER

To Whom It May Concern,

You are being invited to participate in a research study looking at measuring the performance of three alcohol screening tools that will be helpful in assessing alcohol use in the senior population. We have approached seniors who may or may not be consuming alcohol. A senior known to you, _________________________________, has provided us with your name and address. You are being asked to provide corroborating information about the senior’s alcohol consumption. With this information, we will be able to accurately determine whether the screening tools are effective in detecting individuals who may or may not have difficulties with their alcohol use.

Please take your time in reading over the Letter of Information following this letter outlining the details of the study and what your participation will entail. If you are interested in participating or have any further questions about this study, please contact Bonnie Lum at (519) 555-5555.

Sincerely,

Bonnie Lum

Dr. Jennifer Fogarty
Appendix O

Letter of information for contacts
LETTER OF INFORMATION FOR CONTACTS
(Queen’s University)

NAME OF STUDY: The Performance of Three Brief Assessment Tools for Alcohol Problems in a Geriatric Outreach Population: The collateral interview

Dear Participant,

As we try to improve our knowledge when working with seniors, we are testing different alcohol questionnaires that may be helpful in identifying alcohol problems in a sample of seniors that are nondrinkers, social drinkers, moderate drinkers, and problem drinkers. We are in need of contacts known to a senior client to participate in interviews. The senior in question has already given permission to the investigators to contact you in order to ask for this information.

The interview will include questions about the client’s alcohol consumption and related behaviours. This can be done over the phone or in person and should not take more than 20 minutes. In order to participate, you must be someone who has regular contact with the subject involved.

Your identity will remain anonymous; therefore neither your name nor any personal identifiers will be used in any reports or publications arising from this study. Participation in this study is completely voluntary. You may choose to withdraw from the study at any time. This will not affect services provided by any health agency to the senior nor any relationship with Queen’s University.

There are no risks involved in participating in this study nor personal benefits specifically to you, but knowledge will be gained about how to assess the use of alcohol in older individuals.

Please contact Bonnie Lum at (613) 533-3012 if you have any further questions or are interested in participating further in the study. Thank you for your time!

Bonnie Lum (613) 533-3012
Dr. Cella Olmstead (613) 533-6208
Dr. Vernon Quinsey, (613) 533-2874
Head of the Psychology Department
Dr. Albert Clark, (613) 533-6081
Chair of Queen’s University Research Ethics Board
LETTER OF INFORMATION FOR CONTACTS
(Western University)

NAME OF STUDY: The Performance of Three Brief Assessment Tools for Alcohol Problems in a Geriatric Outreach Population: The collateral interview

STUDY INVESTIGATORS:
Bonnie Lum, M.Sc. (Ph.D candidate)
Principal investigator
(519) 555-5555

Dr. Jennifer Fogarty, Ph.D, C. Psych.
Co-investigator
Assistant Professor, Psychiatry and Geriatric Medicine
School of Medicine
University of Western Ontario
(519) 685-4000 ext. 42557

Dear Participant,

You are being invited to participate in a research study looking at measuring the performance of three alcohol screening tools that will be helpful in assessing alcohol use in the senior population. More specifically, we are comparing the effectiveness of three screening tools – the Senior Alcohol Misuse Indicator, CAGE, and Shortened Michigan Alcoholism Screening Test – Geriatric version. We are in need of contacts known to a senior client to participate in interviews and confirm their alcohol consumption. The senior in question has already given permission to the investigators to contact you in order to ask for this information.

The purpose of this letter is to provide you with the information you require to make an informed decision on participating in this research. It is important for you to understand why the study is being conducted and what it will involve. Please contact Bonnie Lum at (519) 555-5555 if you have any questions about the study.

The interview will include questions about the client’s alcohol consumption and related behaviours. This can be done over the phone or in person and should not take more than 20 minutes. In order to participate, you must be someone who has regular contact with the subject involved. You are not required to participate even if your family member or friend is participating in the study.

It is important to know that your identity will remain confidential. Each participant will be given a numerical code on all files. Therefore your name will not be used in any reports or publications arising from this study. The code will be linked to a master list that will be destroyed upon completion of data collection. However, it is important to note that the original signed research consent form and the data that will follow will be included in the file. Your research records will be stored in the following manner: locked
in a cabinet in an office; files will be viewed only by members of the research team and they will be destroyed 5 years after publication. Your contact information will be destroyed after your participation has ceased.

Your identity will remain confidential; therefore neither your name nor any personal identifiers will be used in any reports or publications arising from this study. Participation in this study is voluntary. You may refuse to participate, refuse to answer any questions or withdraw from the study at any time with no effect on your friend/family member’s care. You do not waive any legal rights by signing the consent form. Representatives of The University of Western Ontario health Sciences Research Ethics Board may contact you or require access to your study-related records to monitor the conduct of the research.

There are no risks involved in participating in this study nor personal benefits specifically to you, but knowledge will be gained about how to assess the use of alcohol in older individuals.

If you have any questions about your rights as a research participant or the conduct of the study you may contact:

**Dr. D. Hill, Director, Scientific Director**

Lawson Health Research Institute  (519) 646-6100 ext. 64672

*This letter is for you to keep. Thank you for your time!*
Appendix P
Collateral Interview Form (CIF) + final questions
Interview Booklet

CIF

Collateral Interview Form

William R. Miller, Ph.D.
and G. Alan Marlatt, Ph.D.
Collateral Interview Form for:

Client's Name: ___________________________ ID# ______________________
Client's Date of Intake: ______________________ 19 _____

I. SO's Name: ___________________________ Relationship: ________________
SO's Telephone Number: Home: __________________ Best Time: ____________
Work: __________________ Best Time: ____________
Interview for: _____ Intake _____ Termination _____ 3 mo. _____ 6 mo.
 _____ 12 mo. _____ 24 mo. _____ Other (___ mo.)

II. Alcohol Consumption

Q: "Tell me how you see ____________________'s drinking at the present time." (record comments:)

________________________________________________________________________
________________________________________________________________________

Complete Steady Pattern Chart, if regular drinker.

"What is ____________________'s drinking like in an average week?"

________________________________________________________________________

Complete Periodic Pattern Chart, if appropriate.

"Are there times when ____________________ drinks more than the usual amount?"

________________________________________________________________________

For all reported drinking, record:

Type of beverage(s) consumed and beverage strength, if known
Amount(s) of beverage(s) consumed
Approximate time span of consumption (for BAC)
Whether SO observes (O) drinking, or is guessing (G)

If ABSTINENT for past 3 months, skip Steady and Periodic Pattern Charts but ask:

"To the best of your knowledge, when did ____________________ last have a drink?"

Approximate date: __________ and/or Time since last drink: __________
**Steady Pattern Chart**

If the client drinks at least once per week complete the Steady Pattern Chart, then complete Q/F data summary. (If client does not drink at least once per week, proceed to the Episodic Pattern Chart.)

For each time period enter the type of beverage, % alcohol, amount consumed, and approximate time span during which it is consumed. Indicate whether drinking is observed (O) or guessed (G).

<table>
<thead>
<tr>
<th></th>
<th>Morning</th>
<th>Afternoon</th>
<th>Evening</th>
<th>Total for Day</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monday</td>
<td>O or G</td>
<td>O or G</td>
<td>O or G</td>
<td>Total SECs</td>
</tr>
<tr>
<td>Tuesday</td>
<td>O or G</td>
<td>O or G</td>
<td>O or G</td>
<td>Total SECs</td>
</tr>
<tr>
<td>Wednesday</td>
<td>O or G</td>
<td>O or G</td>
<td>O or G</td>
<td>Total SECs</td>
</tr>
<tr>
<td>Thursday</td>
<td>O or G</td>
<td>O or G</td>
<td>O or G</td>
<td>Total SECs</td>
</tr>
<tr>
<td>Friday</td>
<td>O or G</td>
<td>O or G</td>
<td>O or G</td>
<td>Total SECs</td>
</tr>
<tr>
<td>Saturday</td>
<td>O or G</td>
<td>O or G</td>
<td>O or G</td>
<td>Total SECs</td>
</tr>
<tr>
<td>Sunday</td>
<td>O or G</td>
<td>O or G</td>
<td>O or G</td>
<td>Total SECs</td>
</tr>
</tbody>
</table>

**FORMULA FOR CALCULATING SECs:** 
\[ \# \text{ oz.} \times \% \text{ alcohol} \times 2 = \text{SECs} \]

*A. TOTAL SECs per week .................................
(transfer this total to Quantity/Frequency Summary Data)

*B. TOTAL drinking (nonabstinent) days reported ....

*C. AVERAGE SECs per drinking day \((A \div B)\) ....

*D. ESTIMATED Peak BAC for week .................  \(\text{mg}\%\)
**Quantity/Frequency Summary Data (Steady Drinking Pattern Only)**

Total SECs per week from table: _____ SECs per week

* Multiply by 13 weeks  \[ \times 13 = \]

Total SECs in past 3 months: _____ SECs* (From Steady Pattern Only)

---

**Episodic Pattern Chart (Periodic and Combination Patterns Only) (For Steady Drinkers, go to Part III.)**

<table>
<thead>
<tr>
<th>Type and Amount of Beverages Consumed</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>*Number of episodes in past 3 months:</td>
<td></td>
</tr>
<tr>
<td>*Total SECs: _____ per episode</td>
<td></td>
</tr>
<tr>
<td>*Hours: *Peak BAC: _____ mg%</td>
<td></td>
</tr>
</tbody>
</table>

---

**Quantity/Frequency of Episodic Drinking**

Multiply Quantity [SECs per episode] by Frequency (episodes per 3 months) for each episode type:

\[ = _____ \text{ SECs/3 months}^\dagger \]

---

For COMBINATION PATTERN DRINKERS, subtract from this total the number of SECs already accounted for in the Steady Pattern Chart and record here only SECs in excess of the steady drinking pattern. For PERIODIC DRINKERS, however, record all drinks here (since for these drinkers there is no Steady Pattern).

---

**Total Q/F. Add starred (*) lines from Quantity/Frequency Summary Data and Quantity/Frequency of Episodic Drinking above:**

Calculate for all drinkers: _____ + _____ = *Q/F SECs past 3 mo.
(at intake): Now I want to ask about some experiences and problems that people sometimes have in relation to their drinking. I would like you to tell me if you know whether these have ever happened to

(At follow-up): Now I want to ask about some experiences and problems that people sometimes have in relation to their drinking. I would like you to tell me if you know whether these have happened to

Mark (x) all answered Yes:

<table>
<thead>
<tr>
<th>Past Year</th>
<th>Past 3 mo.</th>
<th>Past Week</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>1. Has any member of _____________'s family (wife, parents, etc.) worried or complained about _____________'s drinking?</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2. Has _____________ gotten into fights when drinking?</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3. Has drinking created problems with _____________ and his/her spouse (husband/wife)?</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4. Has _____________ lost any friends or lovers because of drinking?</td>
</tr>
<tr>
<td></td>
<td></td>
<td>5. Has _____________ gotten into trouble at work because of drinking?</td>
</tr>
<tr>
<td></td>
<td></td>
<td>6. Has _____________ lost a job because of drinking?</td>
</tr>
<tr>
<td></td>
<td></td>
<td>7. Has _____________ neglected his/her obligations, family, or work for two or more days in a row because of drinking?</td>
</tr>
<tr>
<td></td>
<td></td>
<td>8. Has _____________ had any health problems related to drinking?</td>
</tr>
<tr>
<td></td>
<td></td>
<td>9. Has _____________ been arrested, even for a few hours, because of drunk behavior (other than driving)?</td>
</tr>
<tr>
<td></td>
<td></td>
<td>10. Has _____________ been arrested for drunk driving or driving after drinking?</td>
</tr>
</tbody>
</table>

+TOTAL Consequences

Again, during the past (12) months, have these things happened to _____________?

For each Yes, record the proper number of points (as indicated in parentheses) on each line.

<table>
<thead>
<tr>
<th>Past Year</th>
<th>Past 3 mo.</th>
<th>Past Week</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>11. Has _____________ awakened the morning after some drinking the night before and been unable to remember a part of the evening before?</td>
<td></td>
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<tr>
<td></td>
<td>12. Has it been a struggle for _____________ to stop drinking after one or two drinks?</td>
<td></td>
</tr>
<tr>
<td></td>
<td>13. Has _____________ had any trouble stopping drinking when he/she wanted to?</td>
<td></td>
</tr>
<tr>
<td></td>
<td>14. Does _____________ ever drink before noon?</td>
<td></td>
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<tr>
<td></td>
<td>15. Has _____________ had severe shaking after heavy drinking?</td>
<td></td>
</tr>
</tbody>
</table>
|           | 16. Has _____________ heard voices or seen things that weren't there after heavy drinking?

6
Past Year  Past 3 mo. Past Week

17. Has ________ had a hangover?

18. Has ________ shown vague feelings of fear, anxiety, or nervousness after drinking?

19. Has ________ reported a craving or strong need for a drink?

20. Is ________ able to drink more now than he/she used to without feeling the same effect?

21. Has drinking or stopping drinking resulted in ________ having a seizure or convulsion?

22. Has ________ skipped meals when drinking?

TOTAL Dependence

IV. Improvement Ratings (skip this section at Intake)

Q: “Relative to (month of intake), would you say that ________ is drinking more now, or less, or about the same?”

____ (0) totally abstinent  ____ (5) a little more
____ (1) much less  ____ (6) somewhat more
____ (2) somewhat less  ____ (7) much more
____ (3) a little less  ____ (9) SO cannot or will not say
____ (4) about the same amount

Q: “How confident are you about this?”

____ (1) certain or almost certain  ____ (4) not really sure — mostly guessing
____ (2) very confident  ____ (5) simply don’t know
____ (3) fairly confident  ____ _________

(rate only with 9 above)

Q: “Relative to (month of intake), would you say that ________’s problems with drinking are worse, or better, or about the same?”

____ (1) much better  ____ (5) a little worse
____ (2) somewhat better  ____ (6) somewhat worse
____ (3) a little better  ____ (7) much worse
____ (4) about the same  ____ (9) SO cannot or will not say

Please continue on back ▶
Record below any additional comments from the SO, or further information that may be helpful in future SO interviews:
### Final Question for Collateral Interview Form

On a scale from 0 to 10, how confident are you about the information you provided about (PARTICIPANT’S NAME)’s drinking behaviour? (if 0 means NOT CONFIDENT and 10 means VERY CONFIDENT)

<p>| | | | | | | | | | | |</p>
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</thead>
<tbody>
<tr>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
<td>8</td>
<td>9</td>
<td>10</td>
</tr>
<tr>
<td>not confident</td>
<td>somewhat confident</td>
<td>very confident</td>
<td></td>
<td></td>
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</table>
Appendix Q
Letter of information for health care workers (Feasibility study)
LETTER OF INFORMATION FOR HEALTH CARE WORKERS (FEASIBILITY STUDY)  
(Queen’s University)

NAME OF STUDY: The Feasibility of Three Brief Assessment Tools for Alcohol Problems in a Geriatric Outreach Population

PRINCIPAL INVESTIGATORS: Bonnie Lum: 533-3012  
Dr. Cella Olmstead: 533-6208  Head of the Psychology Dept: 533-2874  
Chair of Queen’s University Research Ethics Board: 533-6081

PURPOSE: The objective of this study is to compare the feasibility of three different screening tools to identify alcohol misuse in the senior population (the SAMI, CAGE, and SMAST-G) by Geriatric Outreach health care workers. We are looking for participants to use each of the tools a minimum of five times in their standard assessment with senior clients (55 years of age and over) and provide feedback on their experiences using a brief questionnaire.

PROCEDURE: As part of the study, you will administer the screening tool as part of your general assessment, thereby embedding the tool amongst other health-related questions. Only use one screening tool per client. Verbal consent to participate MUST be obtained from the client before the administration of the tool (see attached script). A copy of the information sheet MUST be left with the senior. After using the screening tools, you will fill out a short questionnaire, which will allow the investigators to determine the utility of these screening tools in practice. The total amount of time you spend on this study (i.e., administering tools, completing questionnaire) should not take more than 1.5 hours.

ELIGIBILITY: To participate in this study you must be an employee of an Outreach Team that provides services to seniors.

CONFIDENTIALITY: Your identity will remain anonymous. Neither your name nor any personal identifier will be used in any reports or publications arising from this study. All responses to the SAMI should remain confidential between staff and client, as determined by your agency’s codes of conduct. Your feedback will not reflect the opinions on your agency’s procedures, but will assess the three tools being tested. All information obtained from this study will be used for research purposes, and should not be used as diagnostic or treatment implications. If you require any further information about the assessment, intervention, or treatment of senior alcohol misuse, please contact the Principal Investigators or call the Ontario Drug and Alcohol Registry of Treatment (DART) toll-free at: 1-800-565-8603.

COMPENSATION: Participation in this study is completely voluntary, with no monetary compensation. You may choose to withdraw from the study at any time. This
will not affect any affiliation you might have at with Queen’s University now or in the future.

**RISKS:** There are no anticipated risks involved in participating in this study.

**BENEFITS:** There are no personal benefits specifically to the participants, but knowledge will be gained about how to assess an older person with alcohol misuse issues. This research will greatly help with early identification, which then could lead to intervention and may lead to benefits, such as preventing serious falls.
LETTER OF INFORMATION FOR HEALTH CARE WORKERS (FEASIBILITY STUDY)  
(Western University)

NAME OF STUDY: The Feasibility of Three Brief Assessment Tools for Alcohol Problems in a Geriatric Outreach Population

STUDY INVESTIGATORS:
Bonnie Lum, M.Sc. (Ph.D candidate)  
Principal investigator  
(519) 555-5555

Dr. Jennifer Fogarty, Ph.D, C. Psych.  
Co-investigator  
Assistant Professor, Psychiatry and Geriatric Medicine  
School of Medicine  
University of Western Ontario  
(519) 685-4000 ext. 42557

Dear Participant,

The objective of this study is to compare the feasibility of three different screening tools to identify alcohol misuse in the senior population (the Senior Alcohol Misuse Indicator, CAGE, and Shortened Michigan Alcoholism Screening Test – Geriatric version) by Geriatric Outreach health care workers. We are looking for participants to use each of the tools a minimum of five times in their standard assessment with senior clients (55 years of age and over) and provide feedback on their experiences using a brief questionnaire.

The purpose of this letter is to provide you with the information you require to make an informed decision on participating in this research. It is important for you to understand why the study is being conducted and what it will involve. Please contact Bonnie Lum at (519) 555-5555 if you have any questions about the study. Participation in this study is voluntary. You may refuse to participate, refuse to answer any questions or withdraw from the study at any time with no effect on your employment status.

As part of the study, you will administer the standard assessment of your agency, with the screening tool inserted. Use each tool at least three times and only use one screening tool per client. The order in which you use the screening tools is up to you. Written consent to participate MUST be obtained before the administration of the tool. A copy of the information sheet and consent form MUST be left with the senior. Please use the script provided to introduce to the study to your client. After the use of the screening tool, you will rate each tool (1=excellent, 2=fair, 3=poor) in a one-page questionnaire (Feasibility Feedback form), which will allow the investigators to determine the utility of these screening tools in practice along a number of characteristics (e.g., clinician comfort, client comfort, ease of scoring, etc.). The total amount of time you spend on this study...
(i.e., administering tools, completing questionnaire) should take less than 1 hour or five 
minutes per client.

To participate in this study you must be an employee of an Outreach Team that provides 
services to seniors and have not used any of the three screening tools with your patients 
prior to participating in this study. We are looking for 20 health care workers for the 
study. Patients should be 55 years of age or older and have the ability to speak and read 
English, and answer questions.

Your identity and the client’s identity will remain confidential. Neither names nor 
personal identifiers will be used in any reports or publications arising from this study. All 
responses to the questionnaires should remain confidential between staff and client, as 
determined by your agency’s codes of conduct. Your feedback will not reflect the 
opinions on your agency’s procedures, but will assess the three tools being tested. All 
information obtained from this study will be used for research purposes, and should not 
be used as diagnostic or treatment implications.

There are few anticipated risks involved in participating in this study, including eliciting 
feelings of shame and embarrassment on the part of the patient. If you require any further 
information about the assessment, intervention, or treatment of senior alcohol misuse or 
dealing with any negative feelings elicited by your patient, please contact the Principal 
Investigators, Addiction Services of Thames Valley at: (519) 673-3242 or call the 
Ontario Drug and Alcohol Registry of Treatment (DART) toll-free at: 1-800-565-8603. 
There are no personal benefits specifically to you, but knowledge may be gained about 
how to assess the use of alcohol in older individuals.

If you have any questions about your rights as a research participant or the conduct of the 
study you may contact:

**Dr. D. Hill, Director, Scientific Director**

*Lawson Health Research Institute (519) 646-6100 ext. 64672*

**This letter is for you to keep. Thank you for your time!**
Appendix R
Letter of information for clients (Feasibility study)
LETTER OF INFORMATION FOR CLIENTS (FEASIBILITY STUDY)  
(Queen’s University)

NAME OF STUDY: The Feasibility of Brief Alcohol Screening Tools in a Geriatric Outreach Population

Dear Participant,

As we try to improve our knowledge when working with seniors, we are comparing different questionnaires that will be helpful in assessing alcohol use in the senior population. We are looking for volunteers from all different backgrounds, cultures, and levels of alcohol use (including teetotalers) to take part in our research project. Please contact Bonnie Lum at (613) 533-3012 if you have any questions about the study.

You should understand that participation in this study is completely voluntary, with no monetary compensation. If you consent today, you are only allowing the health care worker to use one of the questionnaires with you. You can withdraw from the study at any time. This will not affect services provided by your health care agency nor any relationship you may have with Queen’s University now or in the future.

As a participant, you will be asked the questions within the standard assessment, as given by your health care worker. It should not take more than five minutes. It is important to know that your identity will remain anonymous. Therefore your name will not be used in any reports or publications arising from this study. All answers will be confidential between you and your health care worker, as determined by your agency’s codes of conduct.

There are no risks involved in participating in this study. There are no personal benefits specifically to you, but knowledge will be gained about how to assess the use of alcohol in older individuals. Thank you for your time!

Bonnie Lum (613) 533-3012
Dr. Cella Olmstead (613) 533-6208
Head of the Psychology Department (613) 533-2874
Chair of Queen’s University Research Ethics Board (613) 533-6081
LETTER OF INFORMATION FOR CLIENTS (FEASIBILITY STUDY)
(Western University)

NAME OF STUDY: The Feasibility of Three Brief Assessment Tools for Alcohol Problems in a Geriatric Outreach Population

STUDY INVESTIGATORS:
Bonnie Lum, M.Sc. (Ph.D candidate)
Principal investigator
(519) 555-5555

Dr. Jennifer Fogarty, Ph.D, C. Psych.
Co-investigator
Parkwood Hospital
(519) 685-4000 ext. 42557

Dear Participant,

You are being invited to participate in a research study looking at examining the feasibility of incorporating three brief alcohol assessment tools into the current clinical practice of Geriatric Mental Health Outreach health care workers. We are looking for volunteers from all different backgrounds, cultures, and levels of alcohol use (including teetotalers) to take part in our research project. We are asking participants to answer questions from one of the three brief questionnaires on alcohol use. As a participant, you will be asked about your alcohol use using one of: the Senior Alcohol Misuse Indicator, the CAGE, or the Shortened Michigan Alcoholism Screening Test – Geriatric version. Health care workers will then provide feedback on their experiences with each screening tool to determine their utility in their own practice.

We are looking for 60 patients for the study, and are recruiting patients from three sites (20 from Parkwood, 20 from Regional Mental Health Care - London, and 20 from Providence Continuing Care Centre – Mental Health Services in Kingston, Ontario). Patients should be 55 years of age or older and have the ability to speak and read English, and answer questions.

The purpose of this letter is to provide you with the information you require to make an informed decision on participating in this research. It is important for you to understand why the study is being conducted and what it will involve. Please contact Bonnie Lum at (519) 555-5555 if you have any questions about the study.

As a participant, you will be asked the questions within the standard assessment, as given by your health care worker. It should not take more than five minutes. The health care worker will then provide us feedback on which questionnaire they preferred to use with their patients. It is important to know that your identity will remain confidential. Therefore your name will not be used in any reports or publications arising from this
study. All answers will be confidential between you and your health care worker, as determined by your agency’s codes of conduct.

We are asking you to take part because you receive care from a Geriatric Mental Health team. Participation in this study is voluntary. You may refuse to participate, refuse to answer any questions or withdraw from the study at any time with no effect on your current or future care. Representatives of The University of Western Ontario health Sciences Research Ethics Board may contact you or require access to your study-related records to monitor the conduct of the research.

There are few risks involved in participating in this study, although feelings of shame and embarrassment may be elicited. There are no personal benefits specifically to you, but knowledge may be gained about how to assess the use of alcohol in older individuals.

If you have any questions about your rights as a research participant or the conduct of the study you may contact:

Dr. D. Hill, Director, Scientific Director
Lawson Health Research Institute (519) 646-6100 ext. 64672

This letter is for you to keep. Thank you for your time!
Appendix S

Documentation of verbal consent
DOCUMENTATION OF VERBAL CONSENT

Use this script after your patient has read the Letter of Information and has had all questions answered about the study. This script will help you to ensure that what you say to the patient(s) with respect to the study is uniform and accurate. Please ensure that the patient understands the main points of the script.

“Although you may agree to take part in this study, you can stop at any time and we can go back to our regular assessment with no harm done to our relationship as healthcare worker and patient. Now that you’ve read the letter of information and had the nature of the study explained to you, would you like to take part in this study?”

Was verbal consent obtained? __________________________________________________________

Date: _____________________________________________________________________________

Signature of health care worker: ______________________________________________________
Appendix T
Feedback form
**BRIEF ALCOHOL SCREENING TOOL FEASIBILITY:**

**FEEDBACK FORM**

Initials of Clinician: ____________________

Please rank order the 3 tools on their performance in each of the following categories (1=good, 2=fair, 3=poor):

<table>
<thead>
<tr>
<th>Category</th>
<th>SAMI</th>
<th>CAGE</th>
<th>SMAST-G</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Ease of administration</td>
<td>_____</td>
<td>_____</td>
<td>_____</td>
</tr>
<tr>
<td>2. Ease of scoring</td>
<td>_____</td>
<td>_____</td>
<td>_____</td>
</tr>
<tr>
<td>3. Clinician comfort</td>
<td>_____</td>
<td>_____</td>
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</tr>
<tr>
<td>4. Client comfort</td>
<td>_____</td>
<td>_____</td>
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</tr>
<tr>
<td>5. Amount of clinical information</td>
<td>_____</td>
<td>_____</td>
<td>_____</td>
</tr>
<tr>
<td>6. Amount of truthful information</td>
<td>_____</td>
<td>_____</td>
<td>_____</td>
</tr>
<tr>
<td>7. Ability to incorporate into existing assessment protocol</td>
<td>_____</td>
<td>_____</td>
<td>_____</td>
</tr>
<tr>
<td>8. Comprehensiveness</td>
<td>_____</td>
<td>_____</td>
<td>_____</td>
</tr>
<tr>
<td>9. Usefulness</td>
<td>_____</td>
<td>_____</td>
<td>_____</td>
</tr>
<tr>
<td>10. Overall (i.e., which of these tools would you be most likely to incorporate into your existing assessment protocol?)</td>
<td>_____</td>
<td>_____</td>
<td>_____</td>
</tr>
</tbody>
</table>

*PLEASE WRITE ADDITIONAL COMMENTS AND SUGGESTIONS BELOW:

____________________________________________________________________

____________________________________________________________________

____________________________________________________________________

____________________________________________________________________

____________________________________________________________________

____________________________________________________________________

____________________________________________________________________

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Appendix U

Documentation of ethics approval
QUEEN'S UNIVERSITY HEALTH SCIENCES & AFFILIATED TEACHING
HOSPITALS RESEARCH ETHICS BOARD

Queen's University, in accordance with the "Tri-Council Policy Statement, 1998" prepared by the Medical Research Council, Natural Sciences and Engineering Research Council of Canada and Social Sciences and Humanities Research Council of Canada requires that research projects involving human subjects be reviewed annually to determine their acceptability on ethical grounds.

A Research Ethics Board composed of:

Dr. A.F. Clark  Emeritus Professor, Department of Biochemistry, Faculty of Health Sciences, Queen's University (Chair)

Dr. S. Burke  Emeritus Professor, School of Nursing, Queen's University

Rev. T. Deline  Community Member

Dr. M. Evans  Community Member

Dr. M. Green  Assistant Professor, Department of Family Medicine, Queen's University

Ms. T.C. Knott  Research & Evaluation, Southeastern Regional Geriatric Program, Providence Continuing Care Centre – St. Mary's of the Lake Hospital Site

Dr. J. Low  Emeritus Professor, Department of Obstetrics and Gynaecology, Queen's University and Kingston General Hospital

Dr. H. Murray  Assistant Professor, Department of Emergency Medicine, Queen's University

Dr. W. Racz  Emeritus Professor, Department of Pharmacology & Toxicology, Queen's University

Dr. B. Simchison  Assistant Professor, Department of Anesthesiology, Queen's University

Dr. A.N. Singh  WHO Professor in Psychosomatic Medicine and Psychopharmacology, Professor of Psychiatry and Pharmacology, Chair and Head, Division of Psychopharmacology, Queen's University

Dr. S. Taylor  Director, Office of Bioethics, Queen's University and Kingston General Hospital; Associate Professor, Department of Medicine, Queen's University

Ms. K. Weisbaum  LL.B. and Adjunct Instructor, Department of Family Medicine (Bioethics)

has examined the protocol and revised consent forms for the project entitled "Performance and Feasibility of Three Brief Assessment Tools for Alcohol Problems in a Geriatric Outreach Population" as proposed by Ms. Bonnie Lum and Dr. M.C. Olmstead of the Department of Psychology at Queen's University and considers it to be ethically acceptable. This approval is valid for one year. If there are any amendments or changes to the protocol affecting the subjects in this study, it is the responsibility of the principal investigator to notify the Research Ethics Board. Any unexpected serious adverse event occurring locally must be reported within 2 working days or earlier if required by the study sponsor. All other serious adverse events must be reported within 15 days after becoming aware of the information."

Chair, Research Ethics Board

Date

PSYC-051-05
2005-07-11
FACULTY OF HEALTH SCIENCES AND AFFILIATED TEACHING HOSPITALS DATA SHEET
FOR RESEARCH INVOLVING HUMAN SUBJECTS
To be completed only if the research involves the use of human subjects
Attach to Office Of Research Services, Research Data Summary And Signature Sheet

Ref: Ethics to Human Experimentation, Medical Research Guidelines 1997
Queen's University Health Sciences & Affiliated Teaching Hospitals Human Research Ethics Board Guidelines, 1993

Project Title: The Performance and Feasibility of Three Brief Assessment Tools for Alcohol Problems

In a Geriatric Outreach Population

1. Human subjects will be required to participate: NO [ ] YES [ X ]
2. The protocol has been submitted for ethics review: NO [ ] YES [ X ]
3. If answer to 1 is "YES" and 2 is "NO", please explain:

4. Does this research require the participation of hospital patients? NO [ ] YES [ X ]
Circle hospital(s) concerned: KGH HDH SMOL KPH Other (specify) ________________

5. Will hospital facilities be required for research involving human subjects? NO [ X ] YES [ ]
Circle hospital(s) concerned: KGH HDH SMOL KPH Other (specify) ________________

6. Will patients be selected from department other than your department of primary affiliation?
If yes, your signature below indicates that you have received written consent from the
Head[s] of hospital department[s]: NO [ X ] YES [ ]

7. Do all research personnel having contact with patients have appropriate hospital
Department appointments (i.e. staff, residents, departmental assistants)? NO [ X ] YES [ X ]

8. Will research involve the use of hospital facilities over and above those required
for normal patient care? NO [ X ] YES [ ]
If "YES", indicate department: Cost Costs confirmed with (name of person)
Laboratory ____________________________
Nursing ____________________________
Pharmacy ____________________________
Radiology ____________________________
Other [please specify] ____________________________
TOTAL ____________________________

Are these costs included in the budget of the grant application? NO [ ] YES [ ]
If not, how will they be paid for?

__________________________
Investigator
JUNE 27/05
__________________________
Department Head
JUNE 27/05
__________________________
Chair, Research Ethics Board
September 21, 2005

Ms. Bonnie Lum
Department of Psychology
Queen’s University


Dear Ms. Lum

The above-named proposal was reviewed by the PCCC Research Review Committee at their meeting on Monday, September 19, 2005.

The committee noted that on Page 10 of the protocol, it is not identified that testing for the validity of the questionnaires is to be done only within PCCC.

The committee was comfortable with the project proceeding with this amendment.

Appended is the Authorization and Notification of Approved Research Activity form, which we require you to complete and return to this office. It is designed to provide needed information to our Patient Records Department, which will in turn help them to provide you with better service.

Yours sincerely,

[Signature]

John Purdy, M.D.
Chair, PCCC Research Review Committee
c/o Mental Health Services site

JP/gl

c: Ms. L.J. Edmonds, Director, Queen’s Office of Research Studies
Ms. M. Halladay, Director Patient Records & Registration
Ms. L. Kessler, Admin. Director, Geriatric Psychiatry Services Program
Sister S. Langton, Chair PCCC Ethics Committee
Dr. M. Olmstead, Dept. of Psychology, Pharmacology & Toxicology
AUTHORIZATION AND NOTIFICATION OF APPROVED RESEARCH ACTIVITY

TITLE OF RESEARCH PROJECT:

THE PERFORMANCE AND FEASIBILITY OF THREE BRIEF ASSESSMENT TOOLS FOR ALCOHOL PROBLEMS IN A GERIATRIC OUTREACH POPULATION.

Provide a brief description of the Research Project, outlining the information required from the Record:

STUDY I WILL BE RECRUITING PATIENTS USING THE GERIATRIC PSYCHIATRY OUTREACH TEAM TO COMPARE THE PERFORMANCE OF THREE SHORT ALCOHOLISM QUESTIONNAIRES. INFO REQUIRED INCLUDE NAMES AND PHONE NUMBERS OF PATIENTS.

Externally funded? □ Yes □ No If yes, provide Source.

Principal Investigator: BONNIE LUM AND MARY C. OLMSTEAD

Name(e) of Co-Investigators:

DUNCAN DAY

DATA SECURITY Identify methods of maintaining security of the data during and at the end of the study period, such as destruction of raw data.

DATA WILL BE STORED AS PAPER AND COMPUTER FILES IN DR. OLMSTEAD'S LAB. PATIENT INFO AND OTHER DATA CLINICALLY INDICATIVE OF PARTICIPANTS IN THE OUTREACH ACTIVITIES WILL BE IN CONFIDENTIAL FILES. DATA WILL BE STORED UNTIL FIVE YEARS AFTER PUBLICATION OR TEN YEARS AFTER DATE OF COLLECTION IF UNPUBLISHED.

Estimated number of records required (Total number):

[ ]

Time period for record review FROM: (Y/M/D) N/A TO: (Y/M/D) N/A.

AUTHORIZATION

DATE: (Y/M/D) 2005

Signature of PCCC Research Committee Chair or Designate

DATE: (Y/M/D) 2005

Signature of Director of Patient Records & Registration Services (PRRS) or Designate

COMPLETED ORIGINAL TO Chief of Staff, PCCC (c/o Mental Health Services site) with attachments as required

AUTHORIZED COPIES TO Patient Records & Registration Services; Human Resources; Principal Investigator
**AUTHORIZATION AND NOTIFICATION OF APPROVED RESEARCH ACTIVITY**

Please list below co-investigators and their status. Documented credentials are required for all Research Assistants and/or Departmental Assistants. Students and Drug Monitors require a letter of explanation signed by Principal Investigator. Staff are required to submit a Checklist of Resources (form 400400).

<table>
<thead>
<tr>
<th>Name</th>
<th>PCCC Employee</th>
<th>Departmental Assistant</th>
<th>Student</th>
<th>Drug Monitor</th>
<th>Start Date (Y/M/D)</th>
<th>End Date (Y/M/D)</th>
<th>PRRS Initial</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bonnie Lum</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2005/09/01</td>
<td>2009/06/01</td>
<td></td>
</tr>
<tr>
<td>Mary C. Olmstead</td>
<td>N/A</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Duncan Day</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Jen Forsyth</td>
<td></td>
<td></td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1. A *Statement of Confidentiality* (form 400074) must be appended for all individuals who are NOT PCCC employees.

2. All individuals who will be working directly with patients or patient records who are NOT employees or members of the medical staff of PCCC are required to have Departmental Assistant Status, with the exception of students enrolled in academic programs at Queen’s University and drug monitors (Corporate Policy & Procedure B-10).

3. Students/Drug Monitors require a letter of explanation - authorization by Principal Investigator. Drug Company name (to be appended) must be indicated.

4. Documentation of subsequent (additions of) co-investigators must be provided to the Chief of Staff office for authorization.
Use of Human Subjects - Ethics Approval Notice

Principal Investigator: Dr. J.N. Fogarty
Review Number: 13094E  Review Date: February 21, 2007  Revision Number:
Protocol Title: Performance and Feasibility of Three Brief Assessment Tools for Alcohol Problems In a Geriatric Outreach Population
Department and Institution: Geriatric Medicine, Parkwood Hospital
Sponsor:
Ethics Approval Date: March 29, 2007  Expiry Date: August 31, 2008
Documents Reviewed and Approved: UWO Protocol, Letters (5) of Information and Consent (London Patients, London Outreach worker, Collateral interview, Queen’s Outreach worker, Queen’s patients)

Documents Received for Information:
This is to notify you that The University of Western Ontario Research Ethics Board for Health Sciences Research Involving Human Subjects (HSREB) which is organized and operates according to the Tri-Council Policy Statement and the Health Canada/ICH Good Clinical Practice Practices: Consolidated Guidelines; and the applicable laws and regulations of Ontario has reviewed and granted expedited approval to the above named research study on the approval date noted above. The membership of this REB also complies with the membership requirements for REB’s as defined in Division 5 of the Food and Drug Regulations.

This approval shall remain valid until the expiry date noted above assuming timely and acceptable responses to the HSREB’s periodic requests for surveillance and monitoring information. If you require an updated approval notice prior to that time you must request it using the UWO Updated Approval Request Form.

During the course of the research, no deviations from, or changes to, the protocol or consent form may be initiated without prior written approval from the HSREB except when necessary to eliminate immediate hazards to the subject or when the change(s) involve only logistical or administrative aspects of the study (e.g. change of monitor, telephone number). Expedited review of minor change(s) in ongoing studies will be considered. Subjects must receive a copy of the signed information/consent documentation.

Investigators must promptly also report to the HSREB:
a) changes increasing the risk to the participant(s) and/or affecting significantly the conduct of the study;
b) all adverse and unexpected experiences or events that are both serious and unexpected;
c) new information that may adversely affect the safety of the subjects or the conduct of the study.

If these changes/adverse events require a change to the information/consent documentation, and/or recruitment advertisement, the newly revised information/consent documentation, and/or advertisement, must be submitted to this office for approval.

Members of the HSREB who are named as investigators in research studies, or declare a conflict of interest, do not participate in discussion related to, nor vote on, such studies when they are presented to the HSREB.

Chair of HSREB: Dr. John W. McDonald
Deputy Chair: Susan Hoddinott

Ethics Officer to Contact for Further Information
☐ Denise Grafton (dgraffon@uw.o.ca)  ☐ Janice Sutherland (jsutherl@uw.o.ca)  ☐ Jennifer McEwen (jmcwenn4@uw.o.ca)

This is an official document. Please retain the original in your files.

UWO HSREB Ethics Approval
2006-10-01 (HS-EXP)  13094E
April 5, 2007

Bonnie Lum, MSc
PhD Candidate
Queen’s University
Department of Psychology
Kingston, ON K7L 3N6

Dear Ms. Lum:

The Chairperson of the Joint Group Health Centre/Sault Area Hospital Research Ethics Board received application for expedited review of the research proposal identified as “The feasibility of Three Brief Assessment Tools for Alcohol Problems in a Geriatric Outreach Population”. Expedited approval of this protocol has been granted.

Approval is valid for a period of one year, ending April 5, 2008. Approximately one month prior to that time, a request for annual renewal should be sent to the REB office.

No changes, amendments or addenda may be made in the protocol or consent form without Research Ethics Board review and approval.

The Joint Group Health Centre/Sault Area Hospital Research Ethics Board is constituted and functions in accordance with the ICH GCP and the Tri-Council Policy Statement guidelines.

Yours sincerely,

Ms. Jane Sippell
Chairperson
Joint Group Health Centre/Sault Area Hospital
Research Ethics Board

JS/js
MEMORANDUM

DATE: April 2, 2007

TO: Ms. Jane Sippell, Chairperson
    Joint Group Health Centre / Sault Area Hospital
    Research Ethics Board

FROM: Joanne Sloss, Clinical Trials Assistant


Attached are copies of study related documents for a study looking at feedback on the use of three brief alcohol screening tools among Geriatric Mental Health Outreach teams.

- Letter of Information for Participating Staff
- Invitation to Participate in a Thesis Project
- Letter of Information for Patients
- The Feasibility of Brief Alcohol Screening Tools: Interview – Consent Form
- Brief Alcohol Screening Tool Feasibility: Feedback Form
- Senior Alcohol Misuse Indicator (SAMI) Tool
- Scoring Key for SAMI
- Short Michigan Alcohol Screening Test – Geriatric Version (SMAST-G)
- CAGE

Could you please give this study consideration for expedited review? If you approve of the study, please sign the attached approval letter.

Thank you.

/received
Group Health Centre
Research Ethics Board

Date: April 5, 07
Signature of RER Chair/Designate:

/js
RESEARCH ETHICS BOARD

July 27, 2007
Bonnie Lum, MSc (PhD candidate)
Principal Investigator

Re: REB# 2007011

Dear Ms. Lum,

This letter is to acknowledge receipt of your letter (dated July 4, 2007) and e-mail (dated July 18, 2007) in which you address points expressed to you in our letter and e-mail (dated April 27, 2007 and July 18, 2007) and provide revised copies of the Protocol (version 2, July 4, 2007); Letter of Information for Patients (version 2, July 4, 2007), and Invitation for a Research Study (version 2, July 4, 2007) for the above-titled protocol.

Your responses to questions regarding the Protocol and modifications made to the Protocol and Information and Consent Forms, and other documents provided have been reviewed and your protocol has now received approval for the period of one (1) year from the date of this letter.

This approval is contingent upon maintaining adherence to the normal approval process, namely,

- reporting to the Board any adverse events of the project in progress
- seeking prior approval from the Board of any direct use of public media to recruit research participants

Approval will be reconsidered if Hospital resources are used beyond those specified on the Checklist of Resources or the Impact on Hospital resources and/or if Grant funding applied for is not received. However, in either case, the protocol can be re-submitted with revised Checklist information and will be reconsidered.

Annual progress reports must be submitted to the Board for continuation of Research Ethics approval. All ongoing studies are also subject to possible quality assurance review. A termination report is required at the conclusion of the study.

Sincerely, on behalf of the Board,

Alan Douglass, MD FRCPA
Dip. ABSM; Dip. ABPN
Chair, Research Ethics Board
Appendix V

Performance measures identifying problem drinkers vs. at-risk/non-risk/non-drinkers
<table>
<thead>
<tr>
<th>Screening tool</th>
<th>Sensitivity (%)</th>
<th>Specificity (%)</th>
<th>Area under the receiver operating characteristic (AUROC)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAGE</td>
<td>71.43</td>
<td>56.25</td>
<td>0.747</td>
</tr>
<tr>
<td>SMAST-G</td>
<td>57.14</td>
<td>55</td>
<td>0.780</td>
</tr>
<tr>
<td>SAMI</td>
<td>100</td>
<td>66.25</td>
<td>0.829</td>
</tr>
</tbody>
</table>

The performance of the CAGE, SMAST-G, and SAMI in their ability to identify problem drinkers and at-risk/non-risk/non-drinkers, as compared to the clinical interview in the Performance Study (gold standard).