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Improving Screening For Alcohol Use Amongst Women in Primary Care

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REVIEW, APPROVAL AND ACCEPTANCE

The document mentioned above has been reviewed and accepted by the student's advisor, on behalf of the advisory committee, and by the Assistant Dean for MSN and DNP Studies, on behalf of the program; we verify that this is the final, approved version of the student's DNP Project including all changes required by the advisory committee. The undersigned agree to abide by the statements above.

Sarah K. Bell, Student

Dr. Lynne A. Jensen, Advisor

Final DNP Project

Improving Screening For Alcohol Use Amongst Women in Primary Care

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University of Kentucky

College of Nursing

Spring 2017

Lynne A. Jensen, PhD, APRN, Committee Chair

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Dedication

This practice inquiry project is dedicated to all women who suffer from an alcohol use disorder at some point during their lifetime. It is my desire that the health care profession can help to eliminate the stigma associated with alcohol use disorders and educate patients about safe practices related to alcohol use. I intend to consistently screen for alcohol use disorders as a provider and encourage my patients to adopt safe alcohol use practices. Furthermore, I wish to dedicate this project to primary care providers who wish to help their patients lead full, healthy lives.

Acknowledgments

Firstly, I wish to thank my DNP project committee members, Dr. Peggy El-Mallakh and Dr. Karen Butler, for guiding me through this process. I would especially like to thank my faculty advisor, Dr. Lynne Jensen, who has served as an exhorter, a versed professional, and coach throughout my 5 years within the DNP program. Lastly, I would like to thank my husband, daughter, and parents who have supported and encouraged me throughout this journey.

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Abstract

Purpose: The purposes of this practice inquiry project were to examine the effect of the addition of a standardized screening tool (AUDIT-C) within the ambulatory electronic health record (AEHR) and the effect of an education session with primary care providers on documentation of alcohol screening and counseling within the AEHR. Furthermore, provider confidence with Screening, Brief Intervention, and Referral to Treatment (SBIRT) was compared before and after the educational session.

Methods: A quasi-experimental one-group pretest posttest design was utilized via chart review prior to and following the educational intervention for patients seen for an annual wellness exam. Data extracted included any alcohol screening performed as well as any subsequent education in the event of a positive alcohol screen. Provider confidence was assessed via questionnaire utilizing a Likert scale in relation to various SBIRT practices. The questionnaire was administered immediately prior to and 3 months post-intervention.

Results: Assessment of alcohol use with a standardized screening tool increased from 44% to 74%, a statistically significant increase. For those who stated that they did consume alcohol, documentation of frequency of alcohol use improved. Statistically significant increases were noted in the assessment of number of drinks consumed per drinking day and the assessment of binge drinking. Among positive alcohol use screenings, documentation of an additional detailed assessment of use as well as documentation of alcohol use counseling improved. Provider confidence overall improved for general screening practices, but provider confidence decreased for practices specific to alcohol dependent or hazardous alcohol consuming patients.

Conclusion: Alcohol use screening and provider confidence with general screening practices improved after the addition of the AUDIT-C to the AEHR and the training session. This program

could serve as a model for adoption of other primary care clinics. Given that provider confidence decreased overall in relation to counseling and intervention for patients who screen positive for hazardous or dependent alcohol use, additional education is necessary on brief intervention and resources for referral.

Assessment of Alcohol Use Screening in a Women's Primary Care Clinic

Nearly 7% of U.S. adults aged 18 and over meet the criteria for an alcohol use disorder (Guard & Rosenblum, 2013). It is estimated that 4.7% of women and 9.4% of men currently meet criteria for an alcohol use disorder (Guard & Rosenblum, 2013). Alcohol misuse is the third leading cause of preventable death in the United States (CDC, 2011). Among men, rates of hazardous drinking behavior have remained stagnant over the past 15 years (NIH, 2011). Meanwhile, for women hazardous alcohol use and its associated complications have steadily increased (NIH, 2011). The number of drunk driving arrests and visits to emergency departments for unintentional injuries related to excessive alcohol use have risen steadily among women (NIH, 2011).

Primary care is recognized as an optimal place for alcohol screening and subsequent intervention if needed (Charrel et al., 2010; Heather et al., 2004; Elwy et al., 2013). Primary care practitioners are uniquely positioned to identify problem drinking and intervene as a result of established, trusting relationships (Charrel et al., 2010). Among hazardous drinkers, primary care practitioners are often the sole healthcare provider the patient will encounter (Willenbring, Massey, & Gardner, 2009).

Background

Women are more likely to experience complications related to heavy alcohol consumption (NIH, 2011). Differences in body composition mean that a woman's body is more likely to retain alcohol and consequently have more difficulty metabolizing alcohol (NIH, 2011). Women who exhibit hazardous drinking behavior are more likely to experience complications related to liver disease, neurologic dysfunction, cardiovascular damage, in addition to various types of cancer such as liver, colon, breast, esophageal, and ovarian (Donnelly, Kent-Wilkinson,

& Rush, 2013). Women with an alcohol use disorder are also more likely to experience unintended injury and assault. Binge drinking doubles the risk of becoming a victim of sexual assault (Abbey et al., 2011). Alcohol use is a factor in many fatal injuries, including but not limited to motor vehicle crashes, homicides, suicides, burn injuries, drowning, and falls (Guard & Rosenblum, 2013).

Additionally, alcohol misuse screening for women of childbearing age can help to prevent fetal alcohol syndrome. While the hazardous consequences of alcohol consumption during pregnancy are well publicized, women often drink alcohol prior to pregnancy recognition (Goodman & Wolff, 2013). Preconception counseling related to alcohol misuse can help to prevent consequences to a developing fetus during an unrecognized pregnancy (Rose et al., 2008).

Standardized Alcohol Screening Instruments

Several instruments to screen for alcohol use disorder are available for clinicians in the primary care setting. These include the CAGE (Cut down, Annoyed, Guilty, and Eye-opener), the Alcohol Use Disorders Identification Test (AUDIT/AUDIT-C), Michigan Alcoholism Screening Test (MAST), or single item binge drinking assessment. The CAGE is a 4-item scale that assesses efforts to Cut down, whether the patient is Annoyed at expressions of concern about drinking, feelings of Guilt about drinking, and the need for an Eye-Opener in the morning (NIAAA, 2002). Each response is scored as a 1 for yes and a 0 for no. The tool is scored by summing the yes responses, and a score of 2 or greater is a prompt for the clinician to conduct a more in-depth assessment of alcohol use (NIAAA, 2002).

The Alcohol Use Disorders Identification Test (AUDIT) is a 10-item instrument that assesses risky drinking. The instrument addresses the following with points assigned to a

multiple-choice item for how often the person engages in the behavior (see Appendix B). The more frequent the alcohol use practice occurs, the higher the point value assigned. The questions are as follows:

1. How often do you have a drink containing alcohol?
2. How many drinks containing alcohol do you typically have on a drinking day?
3. How often do you have six or more drinks on one occasion?
4. How often during the last year have you found that you were not able to stop drinking once you had started?
5. How often during the last year have you failed to do what was expected of you because of drinking?
6. How often during the last year have you needed a drink in the morning to get yourself going after a heavy drinking session?
7. How often during the last year have you had a feeling of guilt or remorse after drinking?
8. How often during the last year have you been unable to remember what happened the night before because you had been drinking?
9. Have you or someone else been injured as a result of your drinking?
10. Has a relative or friend or a doctor or health worker been concerned about your drinking or suggested you cut down?

A score less than 8 is considered to be a negative screening. The scores are summed with recommendations for clinicians categorized by the following scores: (Babor, Higgins-Biddle, Saunders, & Monteiro, 2001)

8-15: patient education regarding hazardous alcohol consumption

16-19: the recommendation is brief intervention and follow-up

20 or higher indicates alcohol dependence: referral or outpatient assisted withdrawal.

The abridged AUDIT-C is a 3-question survey that addresses risky drinking. The AUDIT-C is the first 3 questions from the AUDIT (see Appendix A):

1. How often do you have a drink containing alcohol?
2. How many drinks containing alcohol do you typically have on a drinking day?
3. How often do you have six or more drinks on one occasion?

For women, a score of 3 or higher is a positive screen for risky drinking (Johnson et al., 2012). If a positive screen is obtained, it is then recommended that the provider administer the full AUDIT (Babor, Higgins-Biddle, Saunders, & Monteiro, 2001). There is an exception within the recommendation that if all points from the AUDIT-C are obtained from question 1 (How often do you have a drink containing alcohol?), then the screening is negative and no further assessment is necessary (Babor, Higgins-Biddle, Saunders, & Monteiro, 2001). The AUDIT or abridged AUDIT-C are recommended over the CAGE given its superior ability to detect hazardous alcohol use as well as alcohol dependence, thus allowing the provider to intervene appropriately (Tam et al., 2013; Reinholdz et al., 2012; Johnson et al., 2012).

The MAST is a 24-item instrument that addresses risky alcohol use (SAMHSA, 2017). Response choices are yes or no and each item is assigned a set number of points for a yes response (SAMHSA, 2017). A score is obtained by summing the responses. A score of 4 suggests risky alcohol use and prompts the provider to investigate alcohol use practices further (SAMHSA, 2017).

The single question binge drinking assessment identifies risky drinking and asks, “How many times in the past year have you had 4 or more drinks on one occasion?” (Moyer, 2013). A “never” or “none” response indicate a negative screen. Any affirmative answer would prompt the provider to assess alcohol consumption further with a standardized screening tool (CAGE, AUDIT, MAST, etc.) (Moyer, 2013).

Screening Recommendations

The United States Preventative Services Task Force (USPSTF) recommends annual screening for hazardous alcohol consumption using a standardized screening tool (Moyer, 2013). The USPSTF currently recommends use of the CAGE, AUDIT (AUDIT-C), or a single question binge drinking assessment (“How many times in the past year have you consumed 4 or more drinks on one occasion?”) (Moyer, 2013). Only 13% of primary care providers surveyed are compliant with this recommendation (Fleming, 2005). Common barriers to screening include lack of provider confidence, lack of adequate provider training, fear of causing the patient discomfort, and time constraints (Barnes et al., 2015). Therefore, alcohol use disorders often go under-diagnosed within the primary care setting and consequently morbidity and mortality related to the complications of hazardous alcohol consumption may increase unless detected (NIH, 2011).

Recent government mandates, such as the Affordable Care Act, acknowledge alcohol use screening as a measure of preventative health maintenance (Williams et al., 2016). Currently the Center for Medicare and Medicaid Services have developed a Physician Quality Reporting System (PQRS), which seeks to reimburse providers based upon certain quality measures (Koltov & Damle, 2014). The 2015 PQRS Measure #173 recommends each patient over the age

of 18 receive an alcohol use screening with a standardized screening tool, such as the CAGE, the AUDIT/AUDIT-C, or MAST at least once during a 2-year period (CMS, 2015).

Interventions for Excessive Substance Use

Screening, Brief Intervention, and Referral to Treatment (SBIRT) is an evidence-based strategy adopted by the Institute of Medicine to identify hazardous substance use behaviors and intervene as appropriate (Guard & Rosenblum, 2013). Appropriate screening is recommended with a standardized screening tool (Guard & Rosenblum, 2013). A brief intervention with motivational interviewing techniques is recommended for those who illicit a positive screen (Guard & Rosenblum, 2013). Elements of the brief intervention include: addressing the hazardous use, assessing readiness to change, adopting a shared goal, and follow-up (Guard & Rosenblum, 2013). Referral to treatment is recommended in the event that substance dependence is detected (Guard & Rosenblum, 2013).

Purpose

The purpose of this practice inquiry project was to examine the effect of the addition of a standardized screening tool (AUDIT-C) and an education session with providers on documentation of alcohol screening and subsequent counseling within the AEHR. The primary aims were to:

- a) improve rates of alcohol screening by providers,
- b) add the AUDIT-C and AUDIT tools into the AEHR,
- c) provide patients with the appropriate treatment in the event of a positive screen,
and
- d) improve provider comfort level regarding alcohol use counseling.

Methods

This study utilizes a quasi-experimental one-group pretest posttest design to assess the effectiveness of the addition of the AUDIT-C and AUDIT tools into the AEHR and an educational intervention targeting primary care providers in an attempt to improve:

1. screening rates for alcohol use,
2. appropriate interventions as based on the AUDIT score, and
3. provider confidence in educating patients by providing the appropriate interventions.

Documentation of alcohol use was compared prior to and subsequent to the addition of the AUDIT-C within the AEHR. The project was approved through the University of Kentucky's Office of Research Integrity on November 8, 2016 (UK IRB 16-0791-P2H).

A one time, hour-long educational intervention with 5 providers (4 physicians and 1 nurse practitioner) took place on November 28, 2016. The educational intervention was provided to a convenience sample of both full-time and part-time primary care providers at a primary care clinic specifically for women, which is affiliated with an academic medical center. All of the providers within the clinic conduct annual wellness exams. Education included information regarding the AUDIT-C (see appendix A) and AUDIT (see appendix B) and appropriate interventions as determined by the AUDIT score.

The AUDIT-C was introduced into the AEHR in June 2016. Prior to the AUDIT-C introduction, there was no standardized screening tool within the AEHR. Any documentation related to alcohol consumption was placed under the section heading of "lifestyle" or "social history". A detail button was available for providers to document alcohol consumption in greater detail.

The educational session began with the administration of the modified Boston Primary Care Survey (see appendix C), which determines how confident providers are when engaging in a variety of Screening, Brief Intervention, and Referral to Treatment (SBIRT) behaviors on a 10-point Likert scale ranging from 1 (not at all confident) to 10 (very confident) (Hettema et al., 2012). An educational presentation was provided on SBIRT curriculum beginning with the AUDIT-C screen, and also covered brief intervention, and referral to treatment. Content included the current National Institute on Alcohol Abuse and Alcoholism (NIAAA) consumption guidelines for women. The consumption guideline recommends ≤ 3 drinks per drinking day and ≤ 7 drinks per week (NIH, 2011). The NIAAA defines a drink with standard alcohol use serving sizes: 12 oz. beer, 5 oz. wine, and 1.5 oz. distilled alcohol (NIH, 2011). A poster, which included the NIAAA consumption guidelines and a list of health related consequences for hazardous alcohol consumption, was taped to a wall within the patient exam room for reference.

Providers were instructed during the session that in the event of an AUDIT-C score greater than 3 (unless all points came from question 1), the full AUDIT tool should be administered (Babor, Higgins-Biddle, Saunders, & Monteiro, 2001). For an AUDIT score of 8-15, patient education related to alcohol use is recommended (Babor, Higgins-Biddle, Saunders, & Monteiro, 2001). For an AUDIT score of 16-19, brief intervention and follow up is recommended (Babor, Higgins-Biddle, Saunders, & Monteiro, 2001). For an AUDIT score greater than 20, referral to treatment and/or outpatient assisted withdrawal is recommended (Babor, Higgins-Biddle, Saunders, & Monteiro, 2001). Lastly, the SBIRT pocket guide published by the SAMHSA was provided along with information regarding various referral sources within the area for those with a moderate or severe alcohol use disorder (Guard & Rosenblum, 2008).

To examine the effect of the educational intervention on provider screening and education of patients, data were extracted from 100 randomly selected charts from annual wellness exams (ICD-10 code Z00.00) from January 2, 2016 – March 30, 2016 and compared via chi-square analysis to data extracted from 100 charts from annual wellness exams from December 28, 2016 - February 28, 2017. Inclusion criteria included: annual wellness exams ICD -10 Z00.00 for women ages 18-89. Exclusion criteria included: patients who presented requesting treatment for alcohol dependence, patients who were currently undergoing treatment, or if the note for the annual wellness exam included an acute illness. Any visits with the clinic’s medical director listed as the provider were excluded given that she was involved directly with this project.

The university’s Center for Clinical and Transitional Science (CCTS) provided a list of medical record numbers eligible for review. Every third medical record number from this list was selected for review until 100 charts were examined for each time period listed. Each chart was examined to ensure inclusion criteria were met. These charts were reviewed to determine if alcohol screening was performed and documented accordingly. For the pre-intervention period, there was no standardized screening tool within the AEHR. Thus for the review, alcohol screening was considered positive if documentation in the medical record provided the following information:

1. alcohol consumption addressed,
2. frequency of alcohol consumption,
3. number of drinks consumed on a drinking day, and
4. frequency of binge drinking.

Charts post-intervention were retrospectively reviewed to determine if the AUDIT-C was conducted. If the AUDIT-C score was greater than three (with the exception of all points having been derived from question one), it was then determined if the full AUDIT questionnaire was administered as represented by a numeric score. For the pre-intervention period, it was determined if any additional assessment via the detailed radio button was documented. The chart was then reviewed to determine if the recommended counseling was documented appropriately.

To examine the effect of the educational intervention on provider confidence in educating patients, all providers who received the training were administered a modified version of the Boston Primary Care Survey immediately prior to the educational intervention. The same questions were administered via the modified version of the Boston Primary Care Survey prior to receiving the educational intervention on December 28, 2016 and post-intervention on February 23, 2017. The mean scores for each question were compared to determine any changes in score between the time periods.

This tool has been modified from the original Boston Primary Care Survey by the principal investigator and the advisor to measure the current level of provider confidence in relation to various SBIRT practices. Rather than asking the frequency of particular provider practices, the tool was modified to reflect provider confidence level. This tool assesses confidence level via a ruler in the same way that Substance Abuse and Mental Health Services Administration (SAMHSA) recommends assessing patient level of confidence in producing behavior change via motivational interviewing (Malone, 2015).

Data Analysis

All data retrieved from the chart review was analyzed using the Statistical Package for Social Sciences (SPSS) version 24.0 software (IBM Corp., 2016). For the alcohol screening

rates, a chi-square analysis compared the frequencies of assessment from the pre-intervention period to the post-intervention period for each of the following variables using a 1 for yes and a 0 for no:

1. Was any assessed of alcohol use documented?
2. Did the patient deny use?
3. Was frequency assessed?
4. Was the number of drinks on any drinking day assessed?
5. Was binge drinking assessed?

Statistical significance was inferred if the p-value was < 0.5 . Each element (frequency, number of drinks, binge drinking) was counted as assessed for those who denied alcohol use entirely.

In a similar fashion for the alcohol use screenings determined to be positive, frequencies of the following elements were assessed both pre-intervention and post-intervention using a one for yes and a zero for no:

1. Was any further detailed documentation listed in relation to alcohol use (ie. AUDIT for post-intervention or detailed radio button for pre-intervention)?
2. Was any counseling documented related to alcohol consumption?

The frequencies of each element were described by the principal investigator rather than a chi-square for statistical significance given that only twelve of the alcohol use screenings were determined to be positive for both time periods.

For the assessment of provider confidence using the modified Boston Primary Care Survey, scores were compared by question to determine a mean score for each question pre-intervention and post-intervention. This information was placed into a chart and described by the

principal investigator (see Figure 1). A test for statistical significance was not conducted given that only 5 surveys were completed both pre-intervention and post-intervention.

Results

Alcohol Use Screening Rates

Recorded documentation in relation to asking patients whether or not they consume alcohol was consistent with national averages: 91.1% pre-intervention/97.8% post-intervention vs. 88% nationally (Fleming, 2005). Compliance with the USPSTF recommendation of alcohol screening with a standardized screening tool improved from 44% to 74% vs. 13% nationally (Fleming, 2005). This was a statistically significant improvement ($p\text{-value} < .000$). This overall figure includes patients who denied alcohol consumption entirely.

The following number of charts were excluded due to conflicting information within the chart: 20 charts pre-intervention (20%) and 7 charts (7%) charts post-intervention. Within the AEHR, alcohol use documentation was recorded under two section headings: “social history” or “lifestyle”. For these charts, the information recorded under each heading was inconsistent and therefore could not be analyzed. The remaining charts, $n = 173$, were analyzed via SPSS software.

Documentation related to alcohol consumption improved from 91.1% (72 charts) pre-intervention to 97.8% (91 charts) post-intervention. While improvement was noticed, it was not sufficient to infer statistical significance ($p\text{-value} = .08$). There were 68 charts for both time periods (39 pre-intervention and 33 post-intervention) in which the patient denied alcohol use and thus were excluded from the chi-square analysis. While both alcohol use documentation and frequency of use documentation increased in the post-intervention period, the increase was not considered statistically significant ($p\text{-value} = .21$) (see table 1). However, significant increases

in the assessment of the number of drinks on a drinking day ($p\text{-value} < .001$) and the assessment of binge drinking ($p\text{-value} < .000$) were seen during the post-intervention period.

Positive Screens Assessed

Documentation improved in terms of an additional, more detailed assessment of alcohol consumption following a positive screen during the post-intervention period (0% vs. 71.4%) (see table 2). Furthermore, documentation of subsequent alcohol counseling did improve during the post-intervention period (20% vs. 42.9%). No chart reviewed met criteria for alcohol dependence for either time period. Therefore, the elements recommended within the information session for referral to treatment or outpatient-assisted withdrawal could not be assessed.

Provider Confidence with the Boston Primary Care Survey

Questions 1-4 reflect provider confidence with general screening practices. Questions 5-6 reflect provider confidence in counseling patients who require brief intervention. Questions 7-8 reflect provider confidence with treatment referral and/or outpatient assisted alcohol withdrawal in alcohol dependent patients. The providers were asked to circle their current level of confidence on a 1-10 scale with 0 not at all confident and 10 extremely confident.

The scores for questions 1, 2, and 3 improved in relation to provider confidence (See figure 1 and table 3):

Q1. Asking patients whether or not they consume alcohol,

Q2. Asking patients the amount they drink, and

Q3. Using a formal screening tool (ie. CAGE, AUDIT, MAST) for alcohol consumption.

The scores for questions 4, 5, 6, and 7, provider confidence scores decreased post-intervention:

Q4. Advising patients who consume alcohol of the current NIAAA guidelines,

Q5. Asking about health problems related to alcohol consumption,

Q6. Providing counseling for alcohol problems, and

Q7. Referring alcohol dependent patients for treatment

Question 8 detected no change in provider confidence, which asks in alcohol dependent patients how confident do you as a provider feel treating them yourself. All 5 providers completed both surveys with a 100% response rate.

Discussion

A routine, standardized assessment of alcohol consumption within primary care is essential for the prevention of long-term and short-term consequences of excessive alcohol use. For women, alcohol use assessment is especially important given that women are more likely to experience complications of excessive alcohol consumption both in terms of health (liver disease, cardiovascular disease, etc.) and unintended injury (physical/sexual assault, falls, etc.) (NIH, 2011; Guard & Rosenblum, 2013). The use of a standardized screening tool for alcohol consumption allows the provider to clearly categorize the severity of alcohol use and intervene as appropriate.

Recorded documentation in relation to asking patients whether or not they consume alcohol was consistent with national averages (91.1% pre-intervention/97.8% post-intervention vs. 88% nationally) (Fleming, 2005). Compliance with the USPSTF recommendation of utilizing a standardized screening tool improved from 44% to 74%, a statistically significant increase. This was not consistent with the national average of 13% compliance (Fleming, 2005). This is perhaps because it is not clear whether the national average includes those who deny use entirely. For those who did not deny alcohol use, compliance with the USPSTF recommendation of utilizing a standardized screening tool improved from 9.8% to 34.4%. This figure is more consistent with the 13% national average (Moyer, 2013).

Documentation related to the frequency of use improved as well (82.9% vs. 92.2%), though not enough to infer statistical significance. During the pre-intervention period, frequency was most often described using the terms either “social” or “occasional” in contrast to the post-intervention period where frequency was most often described using a quantifiable number or range of numbers within the AUDIT-C. It should be noted that for outcomes research, numerical scores provide quantifiable assessments for measuring improvements in care. This could not be done with the previous documentation.

Statistically significant increases were detected in regard to the number of drinks consumed per drinking day (39% vs. 73.4%), as well as the assessment of binge drinking (9.8% vs. 34.4%). While the binge drinking measure was assessed least often, screening a patient for binge drinking (4 drinks or more on a given day in the past year) is considered a standardized screening tool by the USPSTF with 82% to 87% sensitivity and 61% to 79% specificity (Moyer, 2013). While the question within the AUDIT-C asks about 6 drinks or more on a given day within the past year, binge drinking is an essential element of detecting hazardous/harmful drinking as well as alcohol dependence. Frequency of alcohol use was often documented during the pre-intervention period using the term “social” or “occasional” use, and there was often little documentation to assess how many drinks were consumed during such use or to determine if binge drinking was occurring. The increase was likely due to the fact that the AUDIT-C asks about binge drinking specifically, whereas any assessment of binge drinking or number of drinks consumed would have been free texted.

Prevalence rates within the United States of risky alcohol use are estimated at 25% of the population, whereas prevalence of alcohol dependence is estimated at 4% of the population (Higgins-Biddle et al., 2014). Assuming this patient population is reflective of the United States

at large, the expectation for charts reviewed would include 25% (50 charts) positive for risky alcohol consumption and 4% (8 charts) positive for dependence. Rather only 6% (12 charts) detected risky alcohol use and no charts detected alcohol dependence.

There are several possibilities as to why the number of positive screenings was less than expected. Women are more likely to underestimate their alcohol consumption (Institute of Alcohol Studies, 2013). Furthermore, women tend to be more hesitant in providing information related to their alcohol use (Institute of Alcohol Studies, 2013). Women are also more likely to report guilt associated with their drinking and fear criticism on the behalf of the provider (Institute of Alcohol Studies, 2013).

The majority of patients seen within this clinic are Caucasian. White women report higher rates of binge drinking than any other ethnic group (NIH, 2011). Given that binge drinking was assessed least often, it may have gone undetected by the provider. Several of the patients seen within this clinic are university employees with health insurance covered through their employer. Such patients may tend to underreport their alcohol consumption for fear their employer may discover any excessive use.

All 5 providers completed the modified Boston Primary Care Survey with a 100% response rate. Provider confidence increased with the first three questions, which pertain to general screening practices. Provider confidence scores relating to counseling patients with risky alcohol consumption or dependent alcohol use all decreased with the exception of treating alcohol dependent patients, which remained unchanged. It is possible that the setting in which the surveys were administered played a role in the provider confidence scores. The pre-intervention survey was administered during the informational session. The providers were aware that the session was intended to educate on SBIRT practices, which may have lead to an

inherent bias. The post-intervention survey was distributed to providers during clinic hours to be completed at their leisure.

In relation to the NIAAA consumption guidelines, the providers were educated on the current recommended alcohol consumption levels for women (≤ 7 drinks/week and ≤ 3 drinks on a drinking day) (NIH, 2011). From the question, it is unclear as to whether the decrease in provider confidence was related to a lack of knowledge in relation to the recommendations or provider comfort level in discussing those guidelines with patients.

Health problems related to alcohol consumption were mentioned in the information session, but information was not provided as to how providers should counsel patients on such problems specifically. As for providing counseling on alcohol problems, providers were instructed on motivational interviewing techniques. However, these techniques were not practiced via role-play or a scenario example. While provider confidence for these measures decreased, documentation of alcohol use counseling doubly increased from 20% to 42.9%.

Similarly providers were educated on the available referral sources in the area. However, it was noted that there were minimal (only 3) referral sources available within a 100-mile radius. Barriers to referral noted within the session included bed availability, financial constraints, and challenges related to length of stay (child care, work leave, etc.).

Limitations

A main limitation of this study is its small sample size, both in terms of the number of charts reviewed and the number of providers examined. For the chart review, a total of 27 charts had to be excluded from data analysis due to conflicting documentation. Given that the number of charts with discrepancies decreased in the post-intervention period, the principal investigator did not review additional charts since the inconsistent documentation improved. The small

sample sizes are less likely to be representative of the population at large and may not be generalizable.

Two of the limitations stem from the research setting: a women's health primary care setting in an academic medical institution. This study explores the practices of solely female providers and female patients. Thus, this study is not generalizable to male providers or male patients. Furthermore, academic medical institutions are exclusive in terms of practice and resources. They are often located in urban settings. Therefore, the study may not be generalizable to suburban or rural settings. Additionally, many of the clinic patients are university employees and consequently may be less forthcoming with information related to their alcohol use for fear of reprisal.

An additional limitation is that the provider confidence level with SBIRT behaviors relies on self-report, which is inherently biased. Decreased provider confidence in relation to SBIRT practices for hazardous and/or dependent alcohol consumers was unexpected. Given that none of the charts reviewed had a screen which detected alcohol dependence, it could not be determined if the appropriate treatment or referral was made by a provider.

Demographic information (age, race, insurance status, etc.) was not extracted. Given that alcohol was addressed within the documentation at a rate of 91.1% pre-intervention to 97.8% post-intervention using a representative sample population from annual wellness exams, therefore a detectable difference in screening rates between demographic groups was unlikely. Thus, adding demographic information would not have added any benefit to the study.

Implications for Practice

While alcohol use screening has been recognized as a standard prevention priority, successful implementation has proven challenging in a variety of settings (Williams et al., 2016).

The Veteran's Administration (VA) has implemented an electronic clinical reminder system to prompt providers to screen for alcohol use during annual wellness exams (Williams et al., 2016). As a result, alcohol use screening rates within the VA have increased along with documentation of brief interventions as necessary (Williams et al., 2016).

A common theme expressed by the providers involved in this practice-inquiry project cited time constraints as a pronounced barrier to screening. Possible solutions proposed include: allowing the patient to complete the questionnaire herself or utilizing the medical assistant to complete the initial screening. This would allow the provider to review the initial screening and complete a more sensitive screen, such as the AUDIT, to determine any additional treatment and/or counseling necessary. An additional option to meet the USPSTF recommendation would be to implement the standardized one question binge drinking screening, "How many times in the past year have you consumed 4 or more drinks in one day?" Therefore, a provider with time constraints could assess binge drinking in compliance with the USPSTF recommendation. The provider could then utilize the AUDIT in the event of a positive screen.

In relation to the measures in which provider confidence decreased, the following strategies could be utilized. Additional information should be added to the AEHR that prompts providers of the recommended intervention based upon the AUDIT score is recommended. A file, which includes information regarding referral options for patients, should be kept on hand as a resource for providers in the event of a high AUDIT score. The posters, which included NIAAA consumption guidelines and health related consequences of hazardous consumption, provided an opportunity for patients to reference the information and discuss concerns with their provider. The information session should include more extensive information on motivational interviewing, such as role-play and scenario discussion.

Within the AEHR, the problem list (including social history) is automatically populated. In order to change information within the problem list, the provider must manually remove items. This task is tedious and time consuming as each one must be modified individually. In order to prevent conflicting documentation in relation to alcohol, the AEHR should be modified to ensure that alcohol use documentation is confined to one section within the chart.

Adequate documentation of a standardized alcohol screening tool is essential to receiving reimbursement through PQRS measure #173 (CMS, 2015). Furthermore, alcohol use screening documentation is recognized as a quality measure for stage 2 within Meaningful Use (MITRE, 2012). Medicare Access and CHIP Reauthorization Act (MACRA) has listed Preventative Care and Screening: Unhealthy Alcohol Use: Screening and Brief Counseling as measure #431 for reimbursement (Marshall & Arend, 2016). Therefore, this clinic must adequately document a standardized assessment of alcohol use screening within the AEHR, as well as subsequent counseling, in order to receive adequate reimbursement.

Conclusion

Primary care providers are first line healthcare professionals who are uniquely positioned to detect and treat excessive alcohol consumption. Furthermore, patients are more likely to divulge sensitive information related to their alcohol consumption to their primary care provider as a result of familiar relationships (Charrel et al., 2010). Women who are ready to seek treatment for alcohol consumption are more likely to visit their primary care provider to begin the withdrawal process (NIH, 2011). Therefore, it is essential that primary care providers routinely screen for alcohol misuse, as well as competently administer the appropriate intervention based upon patient needs.

While the addition of a standardized screening tool (AUDIT-C) into the AEHR improved overall alcohol use screening, there are multiple strategies listed above which may further improve documentation. While research has recognized SBIRT as an effective strategy to combat hazardous alcohol consumption, its implementation within primary care settings has proven challenging (Williams et al., 2016). Further research should explore strategies related to implementation, such as building prompts into the electronic medical record and adequate training for motivational interviewing. For this specific primary care practice, feedback from providers will be essential to increasing compliance with the USPSTF recommendation statement.

Table 1. Frequency and P-value of AEHR Chart Review (n = 105)

Variable	Pre-intervention	Post-intervention	p-value
Frequency addressed? Yes No	34 (82.9%) 7 (17.1%)	59 (92.2%) 5 (7.8%)	.21
Number of drinks on a drinking day assessed? Yes No	16 (39%) 25 (61%)	47 (73.4%) 17 (26.6%)	.001
Binge drinking assessed? Yes No	4 (9.8%) 37 (90.2%)	22 (34.4%) 42 (65.6%)	.000

Table 2. *Assessment and Documentation of Positive Screenings (n=12)*

Variable	Pre-intervention	Post-intervention
Detailed assessment documented?		
Yes	0 (0%)	5 (71.4%)
No	5 (100%)	2 (28.5%)
Counseling documented?		
Yes	1 (20%)	3 (42.9%)
No	4 (80%)	4 (57%)

Table 3. *Modified Boston Primary Care Survey Provider Confidence Scores (n = 5)*

How confident are you:	Pre-intervention	Post-intervention
Asking about alcohol consumption	8.6	9.0
Asking patients the amount they drink	7.8	8.2
Use of a standardized screening tool	6.8	8.2
Advising NIAAA consumption guidelines	8.6	7.0
Asking about health problems related to alcohol use	7.8	6.4
Providing counseling for alcohol problems	7.4	6.2
Referring alcohol dependent patients for treatment	6.8	5.8
Treating alcohol dependent patients yourself	3.6	3.6

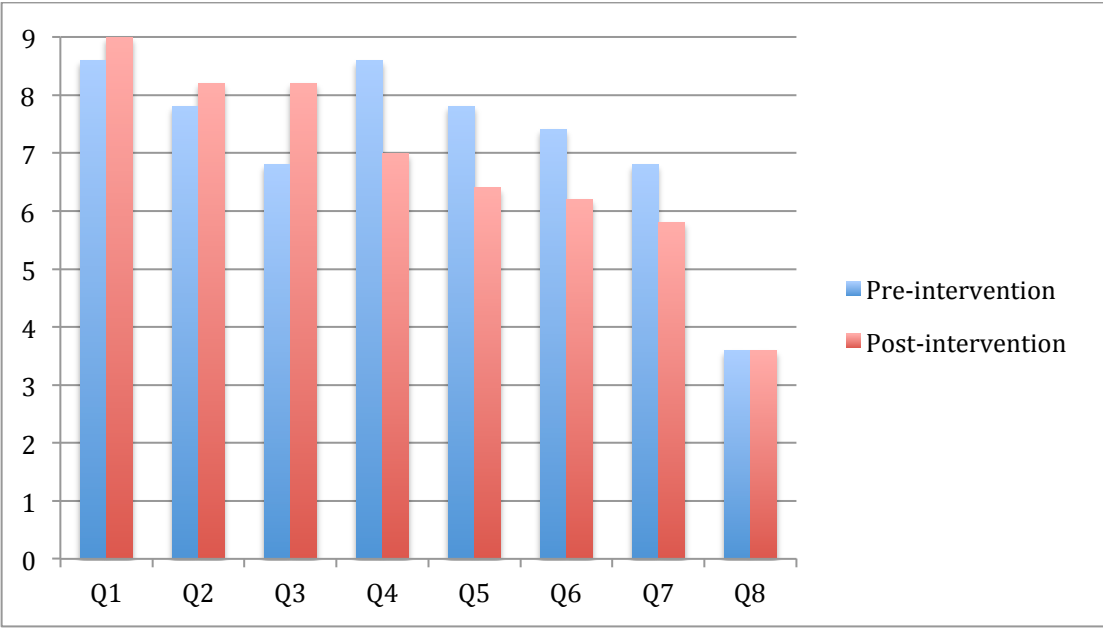


Figure 1. *Provider Confidence with the modified Boston Primary Care Survey (n = 5)*

Appendix A

AUDIT-C

The AUDIT-C is a 3 question screen that can help identify patients with alcohol misuse. The AUDIT-C is scored on a scale of 0-12 points (scores of 0 reflect no alcohol use in the past year). In men, a score of 4 points or more is considered positive for alcohol misuse; in women, a score of 3 points or more is considered positive. If the score is greater than 3, but all points come from question 1, then the screen is negative. Generally, the higher the AUDIT-C score, the more likely it is that the patient's drinking is affecting his/her health and safety.

Q#1: How often did you have a drink containing alcohol in the past year?

- Never (0 points)*
- Monthly or less (1 point)
- Two to four times a month (2 points)
- Two to three times per week (3 points)
- Four or more times a week (4 points)

Q#2: How many drinks containing alcohol did you have on a typical day when you were drinking in the past year?

- 0 drinks (0 points)*
- 1 or 2 (0 points)
- 3 or 4 (1 point)
- 5 or 6 (2 points)
- 7 to 9 (3 points)
- 10 or more (4 points)

Q#3: How often did you have six or more drinks on one occasion in the past year?

- Never (0 points)
- Less than monthly (1 point)
- Monthly (2 points)
- Weekly (3 points)
- Daily or almost daily (4 points)

Appendix B

AUDIT

The Alcohol Use Disorders Identification Test: Interview Version	
<p>Read questions as written. Record answers carefully. Begin the AUDIT by saying “Now I am going to ask you some questions about your use of alcoholic beverages during this past year.” Explain what is meant by “alcoholic beverages” by using local examples of beer, wine, vodka, etc. Code answers in terms of “standard drinks”. Place the correct answer number in the box at the right.</p>	
<p>1. How often do you have a drink containing alcohol?</p> <p>(1) Never [Skip to Qs 9-10] (2) Monthly or less (3) 2 to 4 times a month (4) 2 to 3 times a week (5) 4 or more times a week</p>	<p>6. How often during the last year have you needed a first drink in the morning to get yourself going after a heavy drinking session?</p> <p>(1) Never (2) Less than monthly (3) Monthly (4) Weekly (5) Daily or almost daily</p>
<p>2. How many drinks containing alcohol do you have on a typical day when you are drinking?</p> <p>(1) 1 or 2 (2) 3 or 4 (3) 5 or 6 (3) 7, 8, or 9 (4) 10 or more</p>	<p>7. How often during the last year have you had a feeling of guilt or remorse after drinking?</p> <p>(1) Never (2) Less than monthly (3) Monthly (4) Weekly (5) Daily or almost daily</p>
<p>3. How often do you have six or more drinks on one occasion?</p> <p>(1) Never (2) Less than monthly (3) Monthly (4) Weekly (5) Daily or almost daily</p> <p><i>Skip to Questions 9 and 10 if Total Score for Questions 2 and 3 = 0</i></p>	<p>8. How often during the last year have you been unable to remember what happened the night before because you had been drinking?</p> <p>(1) Never (2) Less than monthly (3) Monthly (4) Weekly (5) Daily or almost daily</p>
<p>4. How often during the last year have you found that you were not able to stop drinking once you had started?</p> <p>(1) Never (2) Less than monthly (3) Monthly (4) Weekly (5) Daily or almost daily</p>	<p>9. Have you or someone else been injured as a result of your drinking?</p> <p>(0) No (2) Yes, but not in the last year (4) Yes, during the last year</p>
<p>5. How often during the last year have you failed to do what was normally expected from you because of drinking?</p> <p>(1) Never (2) Less than monthly (3) Monthly (4) Weekly (5) Daily or almost daily</p>	<p>10. Has a relative or friend or a doctor or another health worker been concerned about your drinking or suggested you cut down?</p> <p>(0) No (2) Yes, but not in the last year (4) Yes, during the last year</p>

Appendix C

Modified Boston Primary Care Survey for SBIRT Behaviors

As a provider, please circle the response, which most closely reflects your current level of confidence in relation to:

1. Asking patients whether or not they consume alcohol

1	2	3	4	5	6	7	8	9	10
Not at Confident				Somewhat confident			Extremely confident		

2. Asking patients the amount they drink

1	2	3	4	5	6	7	8	9	10
Not at Confident				Somewhat confident			Extremely confident		

3. Using a formal screening tool (ie. CAGE, AUDIT, MAST) for alcohol consumption

1	2	3	4	5	6	7	8	9	10
Not at Confident				Somewhat confident			Extremely confident		

4. Advising patients who consume alcohol of the current NIAAA guidelines

1	2	3	4	5	6	7	8	9	10
Not at Confident				Somewhat confident			Extremely confident		

In patients who drink excessively, how confident do you feel:

5. Asking about health problems related to alcohol consumption

1	2	3	4	5	6	7	8	9	10
Not at Confident				Somewhat confident			Extremely confident		

6. Providing counseling for alcohol problems

1	2	3	4	5	6	7	8	9	10
Not at Confident				Somewhat confident			Extremely confident		

In alcohol dependent patients, how confident do you feel:

7. Referring them to treatment:

1	2	3	4	5	6	7	8	9	10
Not at Confident				Somewhat confident			Extremely confident		

8. Treating them yourself:

1	2	3	4	5	6	7	8	9	10
Not at all confident				Somewhat confident			Extremely confident		

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