

2020

Quality Improvement of Substance Misuse Screening of Older Adults in Primary Care Using Evidence-based Training

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Quality Improvement of Substance Misuse Screening of Older Adults in Primary Care Using
Evidence-based Training

Kelly Lopez

Capstone Project Final Paper submitted to the
School of Nursing
at West Virginia University

In partial fulfillment of the requirements
for the degree of

Doctor of Nursing Practice

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Toni DiChiacchio, DNP, Project Team Member

School of Nursing

Morgantown, WV

2020

Keywords: Substance misuse, older adults, screening practices

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Abstract

Quality Improvement of Substance Misuse Screening of Older Adults in Primary Care Using

Evidence-based Training

Kelly Lopez

Background

The largest increase in preventable overdose deaths from 1999-2017 occurred among adults 50 and older, yet substance misuse among older adults is often not screened for or recognized in primary care settings. This oversight has been attributed to many factors, including age-related biases, unrecognized psychosocial and physiological differences, stigmatization, and a rapidly growing geriatric population.

Objectives

A quality improvement program using evidence-based educational training was implemented in a primary care setting with the intention to expand care knowledge and ultimately improve screening practices of older adults, especially those suffering from substance misuse. The Plan-Do-Study-Act Model (PDSA) was used as the theoretical framework to measure change.

Design

This quality improvement (QI) project used a pre-test and post-test to evaluate the effectiveness of an evidence-based educational intervention designed by the DNP student.

Subjects

Participants were recruited from a large community health center in West Virginia and invited to an educational session. Of the 62 invitees, 14 participants submitted program evaluation and of those participants, 12 completed the pre- and post-test. The clinical staff that completed the pre-

and post-tests were composed of physicians (n=3), nurse practitioners (n=3), a social worker (n=1), Registered Nurses (n=4), Licensed Practical Nurses (n=2), and an interpreter (n=1).

Results

A statistically significant improvement in post-test scores ($p < 0.005$) indicated an improvement in knowledge of the concepts with a difference in means of 14.167 (sd 15.050) between the pre-and post-test scores of the twelve participants. The staff attendance goal of 90% to the training program was not met with only 29.0% of invited staff in attendance. Knowledge acquisition of education goals was met with average scores of 90% on same-day post-test. The goal of 100% increase in screening utilization was also met, however, the screening rate only went from zero to two, out of 1374 visits. Feedback was solicited through program evaluation and communication with administration with real-time changes as a part of the PDSA framework.

Conclusion

The evidence-based training program used for this QI project is an effective training tool to improve knowledge of the care of older adults in a primary care setting. Understanding the risks, psychosocial and physiological differences with aging, screening tools, and ways to reduce stigma has the potential to improve care for older adults and reduce age-related disparities. Implementation of this type of training program is feasible and cost efficient. Continual feedback and real-time adjustments will be necessary for program sustainability.

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Dedication

I am dedicating this project to my grandmother, Ruth Elizabeth Schild Turner (August 15, 1921-June 5, 2020). She was a nurse and the best teacher of kindness, compassion, and respect.

Acknowledgements

Just as each facet of nursing requires an educator with a distinct skillset, it takes unique individuals from a variety of disciplines to mentor warriors in the fight against substance misuse. I have had the privilege of working along side many of these individuals in my journey toward a doctorate and would like to express my gratitude for their countless hours of support.

My committee chair Dr. Kendra Barker has worked with me tirelessly over the last 12 months helping me bring this project to fruition. Your patience and intuitiveness paved the way for success and helped me overcome so many barriers. Dr. Toni DiChiacchio introduced me to the systematic function of a leader in the war on substance misuse. She opened many doors for me and awed me with her political artistry. Dr. Sam Cotton was an inspiration and promoted academic excellence and fellowship among DNP students and educators, especially by exposing me to the WV Nurses' Association Political Action Committee. Dr. Joy Buck shared such a wealth of knowledge of research and helped me shape the core of this project. She also connected me with key players in the Eastern Panhandle and assured my DNP etiquette and professionalism. Edie McGoff shared her enthusiasm and passion to reduce disparity from substance misuse. She broke through the WV-VA border by allowing me to witness an organized functional multidisciplinary system and sharing valuable resources.

Being a DNP is part of a force. Listen to the passion that echoes in your heart and let it guide you to foster healing through scholarship.

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Introduction

Substance misuse and overdose have resulted in a national public health crisis. West Virginia (WV) has consistently led the nation in overdose deaths with an unprecedented rate of 57.8 per 100,000 people in 2017. Substance misuse and overdose among older adults over the age of 50 is a growing trend that is often overlooked by health professionals. According to data from the CDC (2018), the largest increase in preventable overdose deaths from 1999-2017 occurred among adults 50 and older, yet substance misuse among older adults is often not screened for or recognized in primary care settings (Schonfeld, 2015). This oversight has been attributed to many factors, including age-related biases, unrecognized psychosocial and physiological differences, stigmatization, and a rapidly growing geriatric population (Kuerbis, 2014). The lack of attention to age-related differences in older adults gives rise to the need for evidence-based substance misuse and screening education for persons caring for older adults. The purpose of this quality improvement project was to implement evidence-based educational training for primary care clinic staff that addresses screening practices and age-related biases related to substance misuse.

Background

Substance Misuse Defined

Substance misuse can be defined as use of a medication inconsistent with how it is prescribed or intended, use of an illicit substance, or abuse of a licit substance (SAMHSA, 2017). This misuse can be viewed as being on a continuum as illustrated in *Figure 1*. Substance misuse can escalate higher on the continuum and lead to substance use disorders (SUDs), including addiction. The most recent version of the *Diagnostic and Statistical Manual of Mental*

Disorders, Fifth Edition (*DSM-5*) defines SUDs by their level of severity that is determined by the diagnostic criteria with which the patient presents (American Psychiatric Association, 2013). These criteria include impaired control over use, social impairment, risky use, and use deviating from the way it was prescribed. Classes of substances that are commonly misused include, but are not limited to, alcohol, caffeine, cannabis, hallucinogens, inhalants, opioids, sedatives, stimulants, tobacco, and synthetic analogues. Although alcohol is the most commonly *used* substance among older adults, prescription medication is the most commonly *misused* substance among older adults (Beaudoin, Merchant, & Clark, 2016).

Substance Misuse in Older Adults

In 2014, over one million older adults in the US had a diagnosis of SUD, with 978,000 having an alcohol use disorder, and 161,000 having an illicit drug use disorder (Center for Behavioral Health Statistics and Quality, 2015). Though substance misuse and alcohol consumption generally decline with age, there has been less of a decline with the cohort collectively known as the “Baby Boomers,” (Draper, et al., 2015). The members of this rapidly growing cohort are those born between 1946 and 1964, classifying them as older adults over the age of 50. Between 2002 and 2013, prescription opioid misuse more than doubled for those age 50 and older (Schepis & McCabe, 2016). Oxycodone is an opioid that has been associated with a high level of substance misuse, and oxycodone has often been prescribed for older adults for pain management related to conditions associated with aging, such as arthritis (McDonald & Carlson, 2013). While the population in the US increased by 16% between 1997 and 2011, the amount of oxycodone sold by retail pharmacies increased by 1,259%, with a large portion sold to older adults (McDonald & Carlson, 2013). SUD rates for adults age 50 and older have been expected

to double by 2020 (Bartels & Naslund, 2013). In summary, substance misuse is a growing problem for older adults.

Risk Factors for Older Adults

Older adults have intrinsic and extrinsic factors that lead to a greater risk for substance misuse and preventable overdose when compared to their younger counterparts (Kuerbis, 2014). Intrinsic factors that influence risk of substance misuse and unintentional overdose include physiological and psychosocial changes. There is generalized loss of water that occurs with aging making older adults more susceptible to the anti-cholinergic side effects of medications and placing them at higher risk for respiratory depression and/or accidental overdose (Cochrane et al., 2017). In addition to changes in pharmacokinetics and pharmacodynamics, some commonalities associated with physiological change in older adults include chronic pain, decreased mobility, increase in coexistent medical conditions, and a change in dietary status (Kuerbis 2014). Another intrinsic factor is the psychosocial dynamics related to substance misuse in older adults including social isolation, depression (which may be related to the death of family or peers), previous SUD or alcoholism, increased frequency of dementia, retirement or change in work status, and age-related stigma of substance use (Kuerbis, 2014).

One important extrinsic factor is polypharmacy, which affects the frequency of and potential for medication interaction, overdose, and adverse outcomes in older adults. There is an increased likelihood that older adults may receive prescriptions for opioids and benzodiazepines, as well as other substances that have greater risk for misuse, abuse, and overdose, due to age-related medical problems (Maree et al., 2016). Negative outcomes in older adults taking such medications may include psychomotor decline, falls, organ failure, drug interactions, intoxication, depression, delirium, or pharmacologic-induced dementia (Maree, et al., 2016).

According to the West Virginia 2016 Overdose Fatality Analysis (West Virginia Violence and Injury Prevention Center, 2017), opioids and benzodiazepines were the most common controlled substance prescriptions filled by decedents in the 12 months prior to their death. This report also identified potential disparity in the overall emergency response to West Virginians older than 65 related to a lower administration rate of naloxone, the antidote to opioid overdose (WV Violence Injury and Prevention Center, 2017). Naloxone treatment in an emergency does no harm, but if emergency response providers do not consider respiratory failure secondary to opiate use, then they might miss the opportunity to prevent an overdose-related fatality. Increased risk related to polypharmacy, age-associated changes, and substance misuse in older adults lead to increased risk of negative outcomes including overdose. This highlights the need for healthcare provider education about screening practices and treatment for SUD in the geriatric population.

Stigma

Another issue that people of any age engaging in substance misuse encounter is stigma. Stigma refers to the disapproval or discrimination of a person based on characteristics that make them stand out from the norm. Stigma causes people to feel shame for things that are often out of their control and often prevents them from seeking the help they need (Greenstein, 2017). Some ways to reduce stigma surrounding substance misuse include:

- Talking openly and respectfully about substance misuse
- Education
- Being conscious of stigmatizing language
- Encouraging equality of importance of recognizing and treating both physical and mental illness
- Being an advocate and showing compassion for patients with substance misuse problems
- Empowering patients instead of evoking shame
- Being open and honest about treatment.

Education in Primary Care

Primary care is the logical setting to implement evidence-based education regarding substance misuse in older adults for two principal reasons. First, older adults are more likely to be seen in primary care on a routine basis for management of chronic care needs (Maree et al., 2016). Additionally, negative health outcomes in older adults related to alcohol and other substance use are disproportionately existent in clinical care settings, particularly primary care (Malone, et al., 2015). According to West Virginia experts, each clinical entity must be prepared to address substance misuse at the time of interaction, and with older adults frequenting primary care for the majority of their healthcare needs, this is the most appropriate setting to address substance misuse practices in this cohort (West Virginia Violence and Injury Prevention Center, 2017). A quality improvement project to educate staff on substance misuse and age-related differences in older adults in a primary care setting can ultimately reduce negative outcomes for this population.

The primary care practice for the project currently uses the two-question Patient Health Questionnaire (PHQ-2) for depression coupled with a brief screening questionnaire for alcohol and drug use during the triage process (see Appendix A for Brief Screen with incorporated PHQ-2). If either the drug or alcohol question is answered affirmatively, it appears in the social history, but does not prompt further screening questions. The Alcohol Use Disorders Identification Test (AUDIT) and the Drug Abuse Screening Test (DAST) are screening tools available to the triage nurse and the provider in the electronic medical record (EMR) (See Appendix B for AUDIT, and Appendix C for DAST). The current providers seldom utilize the AUDIT and DAST tools. The current providers seldom utilize the AUDIT and DAST tools due to a lack of knowledge of their presence and hesitation due to fear of interruption to workflow.

The practice is looking to implement a Screening, Brief Intervention, and Referral to Treatment (SBIRT) program to make the screening process more systematic. SBIRT utilizes evidence-based screening tools such as AUDIT and DAST to determine risk level for substance misuse.

Problem Statement

With a nationwide substance abuse epidemic and an unsurpassed overdose rate in West Virginia, there is a need to assess for and manage substance misuse in older adults.

Purpose

The purpose of this QI project was to educate staff in a primary care clinic on substance misuse and age-related differences in older adults 50 years and older through the implementation of an evidence-based educational program. The evidence-based training aimed to improve knowledge on substance misuse including the statistical impact; risk factors; age-related differences in substance misuse; common screening tools and resources; and cultural awareness and stigma reduction. With anticipations of implementation of a systematic screening process such as SBIRT in the future, it was hypothesized that this education could be used to develop the foundation of knowledge regarding substance misuse for clinical staff in primary care to improve substance misuse screening practices.

Significance

An evidence-based educational program on substance misuse and age-related differences has the potential to improve systematic and organizational consistency with patient care and ultimately reduce negative outcome associated with substance misuse and overdose. Without using education to help reduce age-related biases, age-specific differences could be overlooked, decreasing efficacy of assessment and quality of care. These potential inconsistencies highlight

the need for a project such as this to be implemented in a primary care setting where older adults seek their medical needs.

Literature Review and Synthesis

Methods

The Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) method (Liberati et al., 2009) was used to conduct an integrative review of the literature on screening for substance misuse among older adults. A search using search terms was conducted using the following databases: Academic Search Alumni Edition, Academic Search Complete, AHFS Consumer Medication Information, Alt Health Watch, Applied Science & Technology Source, CINAHL with full text, Education Research Complete, Educational Administration Abstracts, ERIC, Health and Psychosocial Instruments, Health Source-Consumer Edition, Health Source: Nursing/Academic Edition, Human Resources Abstracts, International Pharmaceutical Abstracts, MEDLINE, Primary Search, PsycARTICLES, PsycINFO, and Social Work Abstracts.

Literature search. The combined search terms “older adults or elderly or seniors or geriatrics or aging or age-related” was searched in the title field; “screening or assessment or test or diagnosis or evaluation or detect or determine or find or identify” was searched in the title field; and “substance abuse or substance use or drug abuse or drug addiction or drug use or substance dependence or substance misuse or alcohol or opiate or opioid or benzodiazepine” were searched anywhere in the body of the articles. Limits were also set to include only scholarly reviews published in the English language from January 2013 until December 2018. The Internet based search netted 516 articles. Once exact duplicate articles were removed, 299 articles remained. Four additional records were added to the articles assessed using ascendancy for a total of 303 abstracts for consideration to this review.

Inclusion and exclusion criteria. Inclusion criteria consisted of studies focusing on substance misuse screening of older adults, published within the last five years, and published in the English language. Articles were not limited by setting. Exclusion criteria for the review consisted of opinion articles, editorials, articles with research setting outside of the U.S., and articles that included focus on pediatric populations.

Articles excluded from the review included six articles that were opinion articles or editorials, six additional duplicate articles, 46 studies conducted outside of the U.S., one article of poor quality, thirteen articles that did not focus on screening, and 304 articles that focused on a topic other than screening older adults for substance misuse. An algorithm of the selection process is at the end of this manuscript under *Figure 2*.

Literature Matrix

The Rosswurm literature critique worksheet was used to extract data from the articles (Rosswurm & Larrabee, 1999). The results of each review were placed into a literature matrix at the end of this manuscript in Appendix D, which represents a summary of each article, including the author(s), year of publication, purpose of the study and study variables, type of study, data collection methods including study instruments, strengths and weakness of the study, and implications for nursing practice. Information from the articles was synthesized for support for an evidence-based practice change.

Results

A total of eleven articles were included in this systematic literature review. The literature matrix that follows this section separates information from each article into a table that includes: author(s) and year of publication, the purpose of the study and variables, the study design and method, the sample and setting, data analysis, findings, and critical appraisal of the study.

Study designs. There were nine different types of study designs that appeared in the twelve review articles. There was one systematic review (Maree, et al., 2016); two cross sectional studies (Beaudoin et al., 2016; and Cochran et al., 2017); one mixed-methods study (Henderson et al., 2015); two retrospective studies (Han & Moore, 2018; and Skaar & O'Connor, 2017); one pilot randomized control trial (RCT) (Kuerbis et al., 2015); one community health needs assessment (Loscalzo et al., 2017); one pre- and post-test (Paolillo et al., 2018) one comparison of two systematic reviews (Savage & Finnell, 2015); and one longitudinal study (Schonfeld, et al., 2015).

Substance of interest. All of the studies addressed substance use screening, but the type of substance and purpose of screening varied among the studies. Four of the studies specifically discussed alcohol misuse (Han et al., 2018; Loscalzo et al., 2017; Savage & Finnell, 2015; and Kuerbis, et al., 2015). Although Kuerbis, et al., 2015 focused on alcohol abuse, they also mentioned diversion and illicit substance abuse in some detail. Three studies specifically addressed opiate misuse (Beaudoin et al., 2016; Cochran et al., 2017; Henderson et al., 2015). One article (Maree et al., 2016) discussed opiate and benzodiazepines use. One article (Paolillo et al., 2018) addressed substance misuse in older adults with human immunodeficiency virus (HIV), including prescription medication, alcohol, and illicit substance misuse. One article discussed screening for alcohol, illicit substances, but focused on the identification of prescription drug misuse (Schonfeld, et al., 2015) as a part of SBIRT. Finally, Skaar & O'Connor (2017) specifically discussed screening for potentially inappropriate medication (PIM) use and related adverse events secondary to prescribing practices.

Setting. The review included studies from a variety of settings. Three studies were conducted in the emergency department (Beaudoin et al., 2016; Henderson et al., 2015;

Schonfeld, et al., 2015); and two were conducted in primary care (Kuerbis, et al., 2015; Schonfeld, et al., 2015). Cochran et al. (2017) conducted their study in four community pharmacies in southwestern Pennsylvania. Han et al. (2018) was a study conducted using data from a national online website. Loscalzo et al. (2017) took place in an urban senior center. Paolillo et al. (2018) conducted their study with participants from the HIV Neurobehavioral Research Program (HNRP) at the University of California. The data from the Skaar & O'Connor (2017) study were collected from Medicare Current Beneficiary Survey (MCBS) data set. Three of the studies included results from multiple settings including onsite services, hospital emergency department, urgent care, trauma hospital, primary care, aging services, services provided in-home, mental health setting, substance abuse treatment provider setting, and primary care settings (Maree, et al., 2016; Savage & Finnell, 2015; and Schonfeld, et al., 2015). One of the multi-setting articles was a systematic review (Maree et al., 2016).

Synthesis of Study Findings

Evidence from the eleven articles included in the literature review was synthesized into several dominant themes. These themes included the lack of research and research utilization surrounding substance misuse screening in older adults; the need for screening in primary care; a variety of screening tools used; study limitations; and future implications for providers. These common themes provide a foundation of support for the project.

Lack of research and utilization. There was a general consensus among all of the articles regarding the significant gap in the literature surrounding substance misuse, abuse, and lack of utilization of validated screening tools for older adults. Han et al. (2018) acknowledge the problematic nature of self-report tools in detecting substance misuse and the subsequent difficulty to accurately evaluate screening tools during research. In Cochran, et al. (2017), the

authors discuss the lack of understanding of age-specific risks for persons 50 and older and the lack of utilization of risk profiles in this age group. The systematic review by Maree, et al. (2016) presented findings that older adults were at a higher risk for abuse and misuse due to polypharmacy, the importance of screening in persons 50 and older, and the general underutilization of validated screening tools in older adults.

Screening in primary care. The need for screening in primary care was identified in four studies (Kuerbis, et al., 2015; Loscalzo et al., 2017; Maree, et al., 2016; and Schonfeld, et al., 2015). In the study by Beaudoin, et al.(2016), the majority of participants who satisfied the DSM-5 criteria for prescription opioid use disorder were classified as having a minimal level of misuse, suggesting that primary care is an appropriate setting to implement a screening program for substance misuse. The qualitative evidence presented by the authors in the article by Maree, et al. (2016) shows the fragmentation of care in relation to opioid and benzodiazepine misuse implying that this division of services and lack of substance misuse screening in primary care might be adding to problematic misuse.

Screening tools used. There were a wide variety of type and format of screening tools utilized to identify substance misuse in older adults. The Drug Abuse Screening Test (DAST) and the Alcohol Use Disorders Identification Test (AUDIT) tools were the most frequently utilized screening tools for substance misuse (Loscalzo et al., 2017; Maree et al., 2016; and Savage & Finnell, 2015). Two studies (Beaudoin et al., 2016; and Henderson et al., 2015) conducted research evaluating the Prescription Drug Use Questionnaire Patient Version (PDUOp) in emergency care. Both reported validation of this screening tool for older adults in the emergency department, but Beaudoin et al. (2016) reported less sensitivity and specificity compared to use with younger adults and a need for modification to more effectively screen

older adults. Other tools used to screen for substance misuse and behaviors related to substance misuse were not widely used across the literature but are noted on the evidence table. The largest study utilized an online screening tool found at AlcoholScreening.org (Han et al., 2018).

Although there were a wide variety of screening tools used to identify substance misuse behaviors, the AUDIT and DAST were the most supported tools for alcohol and substance misuse respectively.

Study limitations. There were many limitations noted in the studies included in this review. One of the most common limitations found within the studies was decreased internal validity of the studies due to nature of data collection related to self-reported survey responses and stigma surrounding questions about substance misuse. Another limitation was that most of the studies did not have a population representative of non-English speaking populations. Even studies with large samples such as Han et al. (2018) (n=94,221) did not offer an alternative language as a means of data collection. Beaudoin et al. (2016) opened their study to include Spanish- and Portuguese-speaking patients. Maree et al. (2016) and Savage & Finnell (2015) highlight the barrier of age-related stigma encountered during research and the need to develop programs that de-stigmatize substance misuse in older adults. A third limitation within the studies was a lack of evidence supporting the cost-effectiveness of the utilization of drug and alcohol screening specifically for the population of older adults. However, there was discussion of grants supporting research for implementation of screening associated with SBIRT programs for study of substance misuse in older adults, especially in the article by Schonfeld, et al. (2015) who also discussed potential cost-effectiveness by comparing the costs of implementation to the estimated costs of substance abuse to the healthcare system.

Future implications. There is a general consensus among the studies that substance

misuse in older adults has been rapidly escalating in recent years, necessitating a response from healthcare providers to improve substance misuse screening practices. The review supports the assumption that there is a lack of evidence-based research regarding substance misuse and screening practices in older adults. It also highlights negative outcomes such as overdose related to lack of substance misuse screening in older adults. Considerations for the future that reappeared during the literature review included the need for additional research and pilot studies focusing on the utilization of validated screening tools for substance misuse among older adults. In addition, there is a need to look for alternatives for pain control, sleep, anxiety, and depression to help reduce misuse (Beaudoin et al., 2016). SBIRT has the potential as a cost effective program to reduce negative health outcomes stemming from unaddressed substance misuse (Schonfeld, et al., 2015). There is evidence supporting implementation of SBIRT services and the ability of SBIRT to address mild to moderate substance misuse in a primary care setting (Maree, et al., 2016).

Project

Evidence-Based Project Plan

Phase one: preparation. The intervention had several steps for implementation including a preparatory phase by the project leader.

1. In the preparatory phase, the project leader attended Motivational Interviewing (MI) classes and worked with SUD experts for more than 100 hours to increase project leader knowledge of substance misuse.
2. The project leader summarized evidence-based education about substance misuse, screening,

and stigma in a PowerPoint Presentation format and applied for Continuing Education Units (CEUs) through West Virginia University, (See Education in Appendix E).

3. The project leader worked with the IT department to query patient records to track the number of screenings conducted over time in a method that was independent of identifiable patient data.

Phase two: execution. The execution of the project started during a second phase with the following steps:

1. Recruitment of the staff members at the primary care facility took place through email announcements, an announcement at a monthly staff meeting at the project facility, and by word of mouth.

2. Current staff including primary care physicians, nurse practitioners (NPs), registered nurses (RNs), licensed practical nurses (LPNs), and medical assistants (MAs), received a pretest (See Appendix F for Pre-test/Post-test) on substance misuse screening practices prior to the educational training.

3. Staff attended a 60-minute educational training. Eligible employees received one hour of CEU. Training included the use of substance misuse screening instruments, the AUDIT and DAST tools, and accessing those tools within the EMR as a part of the education.

4. Staff received the same test as a posttest immediately following the evidence-based education to identify concept acquisition of training materials (See Appendix F for Pre-test/Post-test).

Phase 3: evaluation. The evaluation occurred after the educational training session.

1. Periodic feedback was solicited from the staff regarding barriers, facilitators, and process observations. This qualitative data was analyzed for themes.

2. Posttests were executed, collected and analyzed with a t-test to compare knowledge scores pre and post educational training. Two-week post tests were encouraged, but due to poor return and

atypical staffing due to the novel coronavirus (COVID-19) pandemic, were not included in the final analysis.

3. Chart audits for rates of screening instrument usage were monitored weekly for 4 weeks.

4. Data was reported to the primary care clinic administration following completion of this quality improvement project.

Theoretical Framework

Background

The theoretical framework chosen for this study was the Plan-Do-Study-Act (PDSA) model created by W. Edwards Deming in 1950, since modified by the Agency for Healthcare Research and Quality (AHRQ) (2015). This model is a method to test a change that has been implemented. PDSA sets the foundation for quality improvement by helping determine what kind of change needs to be made, how the change will be measured, the educational and training needs to help organizations make the change, and how organizations can build their capability for on-going quality improvement. The framework can be visualized in *Figure 3*. The four steps of the wheel can be described as follows:

Plan. This step involves writing a concise statement of what will be tested, the outcomes and measures desired, and the steps for execution including population and timeframe.

Do. This step is comprised of setting the plan in motion and documenting observations during implementation. These observations can include patient and staff feedback, and impact on workflow or flow of the patient visit. AHRQ (2015) suggests posing the questions, "Did everything go as planned?" "Did I have to modify the plan?"

Study. The third step in the model is to study the results. In this step, there is determination as to whether or not goals were met, and what knowledge was gained from the

observations.

Act. The fourth step is to act on the changes that were identified and incorporate those changes on the next PDSA cycle. This will happen multiple times during the implementation process.

Aligning the Project with PDSA Theory

The four steps of the PDSA Model were applied to the educational program implementation in the following manner:

Plan. This PDSA Model in this project helped evaluate evidence-based education implementation by measuring the change in staff knowledge before, immediately after the education presentation.

Do. The staff received a pre-test immediately prior to the educational offering. Once the staff was trained with the evidence-based program, the project leader administered a posttest immediately after the educational program. A 2-week post-test was solicited, but had very poor return. Observations were made identifying barriers and challenges to implementation, and potential changes to the implementation plan were discussed with administration and staff throughout the organization for QI purposes.

Study. Observations from onsite data collection and interaction with staff were compiled in narrative form. This information was synthesized to determine challenges and facilitating factors that could influence evidence-based program implementation at an organizational and systems level.

Act. As data was collected, feedback was solicited from staff and appropriate real-time adjustments were made to accommodate for deficiencies and documented.

Feasibility Analysis

Considerations of feasibility for this project included whether the project implementation would be cost effective, compatible with the current clinic workflow, accepted by staff, and sustainable. Cost efficacy was maintained by integrating the education into a lunch-and-learn style presentation with only 30 minutes of the session being time paid by the clinic for work-related training. Posters, printed education materials, and labor costs were included in the budget. (See the attached budget in Appendix G for a detailed financial analysis).

Staff acceptance for attending the presentation was addressed by delivering the training during a staff meeting. Staff holding nursing licenses were offered one continuing education unit (CEU) for attendance to the education program and completion of the pretest and first posttest to promote engagement. Acceptance of integrating the screening practices into the daily workflow and entering the information into the EMR was a potential burden to workflow.

Feasibility and sustainability. A SWOT analysis was completed as a part of determination of feasibility outlining the strengths, opportunities, weaknesses, and threats for the project.

Strengths of the project include substance misuse is a timely topic in healthcare, especially with an increase of risk in older adults; this is a project that already has buy-in from the project facility; training can be implemented in a short period of time; and evidence-based screening tools are already in place. Some of the weaknesses include substance misuse as a highly stigmatized topic; there is a small cost to the organization to implement the education; and there may be a challenge to get buy-in from the staff because of threat of increased workload. This project provides an opportunity to decrease health disparity in older adults through improved screening practices; it could set a precedent for larger organizations if successful; and it could reduce healthcare costs associated with substance misuse. Threats to the success of the project include the limited number of validated screening tools explicitly developed for older adults;

limited mental health resources once risk is identified; and possible pushback from pharmaceutical companies who sell easily divertible substances to older adults.

Sustainability of this project will be ensured with the growing need for systematic universal screening practices for substance misuse. With the anticipated vision of the clinic administrators to eventually incorporate a brief intervention and referral process after screening for substance misuse, clinical staff will need a strong evidence-based foundation of knowledge to effectively screen patients in primary care. Approval of the education for CEU will benefit all new licensed clinical staff and add appeal for implementation on a system level

Market Analysis

Strategic analysis with products and services, sales/marketing. The evidence-based substance misuse education has the potential to save healthcare dollars nationwide for older adults through improved substance misuse screening practices and early identification of risk. An estimated reduction of \$366 per member per month of Medicaid costs was demonstrated with the implementation of a screening with an intervention and referral to treatment in Washington State (Coogle & Owens, 2015). The Substance Abuse and Mental Health Services Administration (SAMHSA) is working with CMS on the importance of reimbursement for screening and mental health services. Medicare may not pay for screening services unless specifically required by statute. Substance abuse is a great financial burden on the healthcare system. Awareness of substance abuse misuse and age-related discrepancies has the potential to decrease risk, reduce health disparity in older adults, and decrease the cost burden related to substance abuse disorders and overdose.

Operations and financial plan. This program utilized minimal time in the daily

workflow and resources that are already available onsite. The cost to implement this education will be overshadowed by the savings related to quality improvement and decreased risk.

Project Resources

A primary care practice within a community health center was the location for the project. There is a buy-in from the primary care physicians and medical director at this site. This practice has a conference room and designated monthly staff meeting time that has been offered to announce the education and a working lunch period has been offered to complete the education. The education will be available for CEU, also an existing resource for licensed clinicians.

Budget

Justification. Administrative Justification: Staff of the primary care clinic was paid for thirty minutes of the hour of time allotted for lunch, education, pre and post-test. During this hour, clinical staff received evidence-based educational training. Instruction took place during the staff lunch with an additional paid 30 minutes with time to take the pretest and posttest and a period for open communication and concerns.

Marketing Justification: Announcement emails were sent to staff regarding training and educational program rollout. Periodic feedback communication to staff regarding the education took place the 2 weeks following the education.

Educational Materials/Incentives Justification: The participants each received a packet with educational materials that coincided with the PowerPoint presentation.

Hospitality Justification: Providing lunch likely improved employee buy-in and allowed time for feedback to project leader.

Project Supplies Justification: Miscellaneous supplies included cost of office supplies during project organization.

Travel Expenses Justification: Travel for project leader to Ithaca, NY for Motivational Interviewing courses. Project leader and staff transportation to primary care site was included as a part of daily workflow.

Detailed budget description. The total amount budgeted for this project is \$2170, which can be broken into three main categories: cost to the project leader, direct cost to the organization, and in-kind contributions from third party organizations. The majority of the estimated cost was to the project leader. This included the cost for lunch during training, miscellaneous office supplies for the project, posters to announce program, motivational interviewing classes for the project leader, and estimated work hours collecting data. The principal costs to primary care facility were for printing and labor, which totaled about \$170. Roughly \$100 of this was for additional labor costs. These include 50 minutes of education training during a lunch that was provided as an incentive to the staff, during which 10 minutes of additional time was utilized to conduct pre and posttests. The training day took place at the community health center facility, eliminating additional costs for a training venue. There is also a potential for improved cost efficiency as more licensed clinical social workers become part of integrated care teams in primary care team. A detailed table of budget expenditures is at the end of this article in Appendix G.

Organizational and Project Needs Assessment

The mission statement for the project site is “to promote health and wellness within the community by providing a Medical Home to reduce barriers to care and ensure access to a full range of coordinated health care and wellness services.”

(<https://www.shencommhealth.com/about-us>) The project aligned with this mission statement well by promoting health and wellness for individuals experiencing substance misuse.

Organizational policies. There were no identified organizational policies or regulations that impeded the implementation of the project.

Stakeholders. Stakeholders included the patients receiving care, the employees, and the administration/policymakers of the organization; the educators and proponents of the educational program; multidisciplinary teams that treat the patients identified as having increased risk for substance SUDs; and researchers including the capstone committee.

Roles of the project team. Team roles included Dr. Kendra Barker as the committee chair, Dr. Toni DiChiacchio as a faculty committee member and content expert, and Kelly Lopez as the project leader and primary data collector.

Limitations. Limitations were buy-in from staff and refusal to respond to the pre and posttest questions, especially at 2 weeks. There is stigma associated with substance abuse, but no perceived defensiveness or a decrease in staff satisfaction for the organization while discussing the topic of substance misuse.

Success. Success was measured by the achievement of a score of 90% or better on the same-day posttest for evaluation of knowledge acquisition from the educational training. It was also measured by a 100% increase in AUDIT or DAST screens following educational training.

Long-term sustainability. Long-term sustainability will include alteration of orientation material for new employees and policies to reflect the practice change in the organization with link to organization's strategic plan.

Long-term goal. A long-term goal for the project is consistent utilization of the

substance misuse education following policy change to maximize the quality of care with patients, especially older adults (50+) who previously fell in the care gap.

Key Site Support

The medical director at this site is also a longstanding provider in the area. She has verbalized great interest in this project and offered support through research at the primary care site. A letter of support is available at the end of this paper in Appendix H.

Ethical Considerations

IRB approval posed a challenge due to the protected nature of substance misuse as a behavioral health entity. The initial proposal included a similar quality improvement project that focused on screening practices in a patient population as opposed to knowledge acquisition among staff.

Measurable Project Objectives

Objectives

1. Evaluate the knowledge acquisition of education
 - a. by 90% > score on same-day posttest and
 - b. 80% or greater on 2-week posttest
2. Describe the barriers and facilitators to quality improvement education program.
3. Assess the rates of screening for substance misuse within the general and older adult populations at this primary care clinic.
 - a. 100% increase in screening rates following educational training.

Specific Evaluation Plan

Process Indicators

1. A 90% goal of primary care staff were to attend educational training, tracked by using a sign-

in sheet.

2. Pre and posttests were graded and stratified by question.
3. EMR chart audits were analyzed for number of substance misuse screenings performed.
4. The project leader collected qualitative feedback from staff on barriers to work flow and effective program implementation strategies documented in narrative form.
5. The project leader recruited a champion to continue to provide education to new staff now that project is complete.
6. The project leader conducted a reevaluation post project as a retrospective analysis for project sustainability.

Outcome evaluation.

1. Knowledge acquisition of educational material was to meet a goal of 90% or > immediate post education.
2. Knowledge acquisition of educational material was to meet a goal of 80% or > two weeks post education.

Process evaluation. Frequent review of the plan goals and evaluation methods were used to maintain fidelity of the project as well as feedback from committee members and content experts.

Statistics. Descriptive statistics were used to capture demographic characteristics of the staff, and scores. Paired T-tests were used to assess differences in pretest/posttests.

Instruments. There is one pre/ posttest questionnaire modified from the SAMHSA pre-post test questionnaire with a program evaluation that included two questions regarding barriers and facilitators to functionality of the project implementation.

Results

The education event was conducted at lunchtime on April 23, 2020 at a primary care practice in a community health center in West Virginia via Zoom meeting and partial live attendance with this researcher as the facilitator. Live attendees were limited to six persons due to facility COVID-19 isolation protocol. Invitees (n=62) were recruited via mass email approximately one month and again one week prior to the presentation. The email sent one week prior to the presentation contained a materials packet with a copy of the PowerPoint presentation, along with pre- and post-test forms, and the program evaluation form. A hard copy of the materials packet was provided for live attendees. The presentation was made available for staff via a private YouTube viewing immediately following the presentation. The presentation was anonymously viewed three additional times according to a YouTube audit, but no additional evaluations or pre-post tests were submitted once the link to the private viewing was made available. A total of six staff (n=6) attended the live presentation, and eleven staff (n=11) attended the virtual live presentation through a Zoom videoconference for a total of 18 attendees (n=18). A total of 14 (n=14) staff members submitted program evaluations following the presentation. Twelve participants (n=12) completed a pre- and post-test the day of the training. Demographic data of the clinic was unavailable. Demographic characteristics of the participants that completed both the pre- and post-test and the program evaluation are listed in Table 1 in Appendix J.

Results From Pre- and Post-tests

Data analysis. A total of twelve (n=12) of the attendees turned in pre- and post-tests the day of the presentation. Only three of the participants submitted 2-week post-tests despite two additional reminder emails and verbal in-person prompts at the end of the two-week interval.

Due to the poor return of the 2-week post-test, this data was not included in final data analysis with paired t-tests. Pre- and post-tests were stratified by question in Table 1 (Appendix J). This stratification includes the average correct scores of the participants, by question. Column A refers to pre-test results, column B refers to post-test results, and column C refers to 2-week post-test results. The total number of results for A was twelve (n=12), for B was twelve (n=12), and for C was only three (n=3). . The questions with the lowest average correct scores for the group on the pre-tests represented knowledge deficits on the relationship of trauma and SUD (33.3%), purpose of the DAST-10 (41.7%), and recommended drinking limits (58.3%). The questions with the highest correct scores on the pre-test included stigmatizing language (100%) and concept of warm-hand offs (100%). The questions exhibiting the most improvement in knowledge between pre- and post-test immediately after the training session was the question regarding SUD and trauma (50% increase) and DAST-10 (41.6% increase).

A total of twelve (n=12) of the attendees turned in pre- and post-tests the day of the presentation. Three of the participants submitted 2-week post-tests. Ten out of twelve participants had an increase in score the day of the presentation and one of three had an increase on the 2-week post-test. The other two post-test scores had no change. The average pre-test score was 75.8% and average post-test score was 90%. The average two-week post-test score was also 90%, which exactly meets the proposed 90% goal. SPSS was used to calculate statistical significance using a paired t-test comparing pre- and post-test scores by participant. A statistical significant improvement in post-test scores ($p < 0.005$) indicated an improvement in knowledge of the concepts with a difference in means of 14.167 (sd 15.050) between the pre-and post-test scores of the twelve participants.

Program Evaluation Results

Likert Scale. The CEU program evaluation tool was rated on a Likert Scale with each response ranging from one to five with one representing “strongly disagree,” two representing “disagree,” three representing “neutral,” four representing “agree,” and five representing “strongly agree.” A total of 14 CEU evaluations were collected, which was 22.6% of the staff invited, however, not all of the 18 attendees turned in evaluations. All response questions (n=7) had an average rating between the categories of “agree” or “strongly agree” for the evaluations submitted (n=14). The evaluation question with the highest rating included presenter knowledge of the material, and the evaluation question with the lowest rating included the intention to use the knowledge in daily work.

Qualitative response. At the end of the program evaluation, there were two open-ended questions addressing what participants liked about the presentation and what would be changed. There was also space for general comments. The components the participants liked were the information about at-risk behaviors, the graphics used, stigma reduction, resources, and screening tools. Stigma and screening resources were the most liked topics, both appearing in three of the fourteen responses. For the things that could have been changed, there were two responses each that would have liked more time and would like face-to-face (without social distancing). General comments included gratitude for addressing this particular topic and that the presentation was successful.

Utilization of screening tools post-education. According to weekly queries for four weeks following the training presentation, there were a total of 1895 visits, of which, 1374 were adults eighteen and older. While the focus for this project was to increase screening in older adults, the presentation included recommendations for using screening tools in all adult patients. During the four weeks, the AUDIT tool was not accessed. During this time, one primary care

provider out of all of the 62 staff members (eight providers and 56 support staff) with access to the screening tools accessed the DAST tool on two different occasions. The subsequent scores were a score of 12 for a white male age 48 and a score of 18 for a black female age 39. Both scored greater than “12” which is considered problematic substance use and both patients were referred to treatment. Two primary care providers in the practice that manage a large volume of the patients were approached during the 4 weeks following completion of data collection to inquire about obstacles to using the screening tools. These PCPs reported the screening tools were a great burden on time in a time intensive full primary care visit. Four triage staff (LPNs and MAs) were also approached and queried; they reported they were either not aware of the tools or were intimidated to initiate the conversation due to stigma related to substance misuse or crossing the line into behavioral health. This may have been because substance misuse is a sensitive topic or due to the varied clinic schedule during the pandemic.

Discussion and Recommendations

Congruence With Theoretical Framework

PDSA sets the foundation for quality improvement by helping determine what kind of change needs to be made, how the change will be measured, the educational and training needs to help organizations make the change, and how organizations can build their capability for on-going quality improvement. As a part of the PDSA framework, project research identified disparity for substance misuse screening, especially in older adults. The change was introduction of an educational program that would help distinguish and reduce age related biases of substance misuse and improve utilization of screening tools already in place. The results of the program implementation showed an improvement in learning, but not necessarily with knowledge pertaining to older adults. Additional questions to measure the knowledge specifically regarding

care of older adults is needed to evaluate program efficacy for this population. The program was evaluated as helpful and staff feedback supported the use of such a program to learn more about substance misuse screening practices. The results of the quality improvement program were discussed with the administration with feedback. There was a consensus that presenting this project during the COVID-19 pandemic was not optimal for learning, especially when participants might be hesitant to ask questions if they were not accustomed to a virtual platform. It was also mentioned that the PowerPoint was not easily visible during the videoconference delivery, making it difficult to follow along unless a PowerPoint handout was in hand. In an email exchange with the IT officer that assisted with data queries, it was mentioned there is missing functionality on the screening templates that do not accurately reflect aggregate data. There was agreement between the medical director and this researcher that the program would be release to be used in new employee orientation once it is reformatted as a narrated PowerPoint presentation to be presented by the Quality Department.

Future Implications

Despite the shift in attention to the COVID-19 Pandemic, substance misuse persists as a problem in our nation. Training that effectively conveys knowledge of substance misuse to clinical staff in primary care is needed to reduce stigma and age-related biases. Designing a program that fits the needs of a primary care clinic must be clear, concise, and easy to access. It must be presented in a manner that subdues the chaos caused by COVID, allowing focus on the topic at hand. Empowering triage staff to consistently access the AUDIT and DAST screening tools can reduce the time burden for providers and deliver more systematic screening and pave the way for anticipated programs such as SBIRT. More research is also needed to determine the ability of systematic screening to capture the screening of adults 50 and older.

Sustainability Plan

As a part of the long-term sustainability plan, the quality officer was selected as the champion to help sustain long-term program utilization. A pre-recorded PowerPoint with narration was made available to the clinic to be used during subsequent employee orientations. The quality officer has copy of PowerPoint to use as part of her orientation presentation. Additional follow-up AUDIT and DAST utilization queries will be conducted again after project completion. Final project expenditures were less than \$1000, much under budget. The projected budget was total \$2170, with the majority of costs incurred by the project leader on motivational interviewing classes, education materials, and lunch provided. The cost to the facility was less than \$100 in supplies and less than \$100 in labor hours. The supplies could be eliminated if electronic copies are used. Also, the time of the recorded PowerPoint was reduced to 30 minutes without interactive cultural awareness portion, which was an interactive exercise during the live presentation. The project leader will solicit continual feedback from the project facility to improve and expand the substance misuse education over time.

Limitations

The study was limited by its small sample size, making it challenging to find significant relationships between the data. In addition, demographic data was not correlated to test scores as the demographic data was taken from a CEU roster rather than the pre- and post-test forms. There were a number of planning obstacles caused by atypical staffing routines due to the COVID-19 pandemic. The poor return on the 2-week post-tests was likely due to the downsized staff in response to the COVID-19 pandemic. Additional data for knowledge retention is warranted. Due to a high turnover rate at the clinic, demographic data of the clinic is constantly changing, however, the participant group was fairly reflective of the participant group based on the

observations of this researcher.

Conclusion

This quality improvement project promotes systematic substance misuse screening practices and has the potential to improve capture screening for older adults 50 and older, decreasing health disparity in this group. It can reduce the stigma surrounding substance misuse through education and help foster a professional and healing environment for patients at risk for or suffering from substance abuse disorders. The project is financially feasible and can ease the implementation of SBIRT and ultimately reduce disparity from substance misuse. Integrating behavioral principles in health care within the medical setting can improve the continuity of care.

Attainment of DNP Essentials

Listed below are the eight DNP Essentials (American Association of Colleges of Nursing, 2006) and specifics on attainment:

DNP Essential I: Scientific underpinnings for practice

This DNP Essential stresses the importance of science-based concepts and nursing theory in practice to improve outcomes and enhance the quality of patient care. An evidence-based literature review on substance misuse and knowledge gathered from 1000+ practicum hours was used as the foundation for the educational offering implemented in this quality improvement project. The PDSA Model was used as the theory to evaluate change and provide valuable evidence in support of the refinement of screening practices in primary care.

DNP Essential II: Organizational and system leadership for quality improvement and systems leadership

DNP Essential II focuses on the synthesis of evidence-based research and the propagation of this research into practice by designing tailored-made programs or interventions that meet patient care needs and the needs of the organization. An evidence-based educational intervention was developed after completion of research supporting the need for change in screening practices for older adults in primary care. This need was communicated to other organizational leadership and a cost-effective quality improvement initiative was proposed, approved, and implemented.

DNP Essential III: Clinical scholarship and analytical methods for evidence based practice

This DNP essential is the core of research and academic excellence. It denotes the importance of movement beyond the mere collection of knowledge into meaningful function in practice. This essential encompasses the identification of health disparity, utilization of research to develop and evaluate practice strategies, and ultimately reduce gaps in care. A literature review was completed with critical appraisal. An increase in negative health outcomes for adults 50 and older

with substance misuse was discovered and attributed to age-related biases, unrecognized psychosocial and physiological differences, stigmatization, and a rapidly growing geriatric population (Kuerbis, 2014).

DNP Essential IV: Information Systems/Technology and Patient Care Technology for the Improvement and Transformation of Health Care

DNP Essential IV is the necessity that a DNP graduate possesses proficiency in information technology and the ability to apply it to practice. The educational offering was developed in a PowerPoint format, and presented in multiple platforms, with the primary modality being via a Zoom videoconference. Completing this project in the midst of the COVID-19 pandemic doubly reinforced the need of effective and expedient communication.

DNP Essential V: Health Care Policy for Advocacy in Health Care

This DNP Essential relates to the identification of a problem and the development of a policy solution that advocates for all patients and promotes social justice. This project identified a health disparity in adults 50 and older surrounding substance misuse. One of the key steps in this project was maneuvering around the stigma of a sensitive topic and advocating for systematic screening practices for all adults by educating staff about substance misuse risk factors, age-related biases, stigma reduction, screening tools, and available resources.

DNP Essential VI: Interprofessional Collaboration for Improving Patient and Population Health Outcomes

Essential VI discusses the need for a DNP graduate to be able to collaborate and effectively function as a member of a complex interdisciplinary team. Substance misuse spans across the confines of behavioral health, physical medicine, and community health. Development of the program was based the cycle in the PDSA Theory using feedback from integrated behavioral specialists in the primary care clinic, administrators, clinical staff, interpreters, and members of the

information technology team. The educational offering was made available to a variety of positions among clinical staff with the recognition that integrated care supports patient-centered care.

DNP Essential VII: Clinical Prevention and Population Health for Improving the Nation's Health

This DNP Essential requires a graduate be able to determine an at-risk population and act to decrease health risk and promote population health. Although recently overshadowed by the COVID-19 pandemic, substance misuse and overdose have created a national health crisis and have especially impacted the health of adults 50 and older with even greater risk in West Virginia. Education to reduce age-related biases has the potential to reduce health disparity in this population.

DNP Essential VIII: Advanced Nursing Practice

The eighth and final DNP Essential demands the DNP graduate to be able to conduct a comprehensive assessment of need in the healthcare community, mentor other clinicians, and help patients journey to a more optimal state of health. It also demands the understanding and enhancement of relationships among practice, community, fiscal, and policy topics.

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Figures

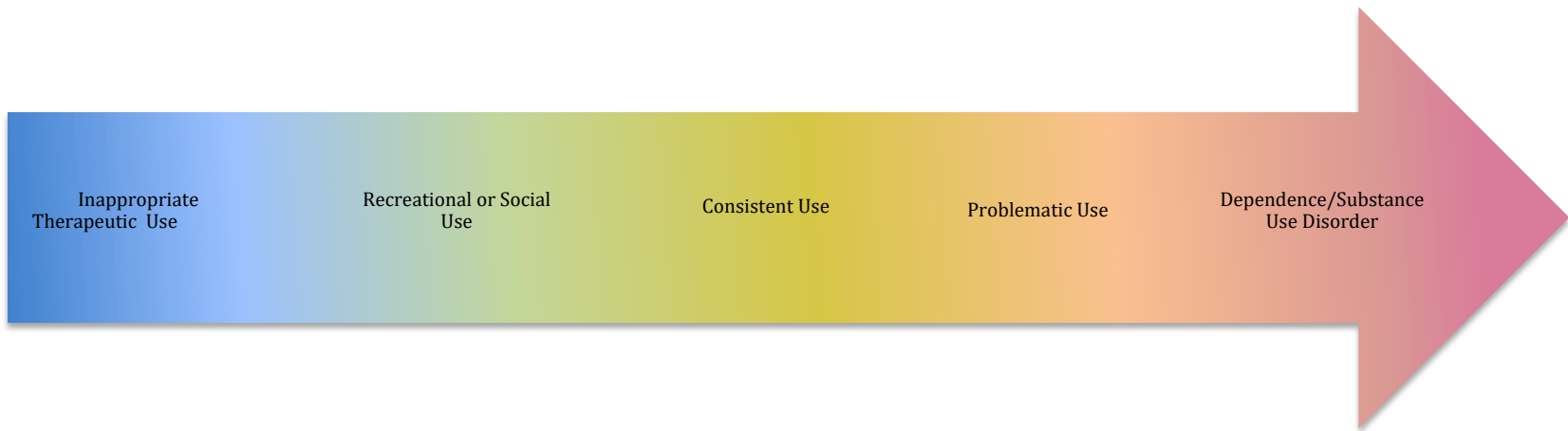


Figure 1. Substance Misuse Continuum

Systematic Review Process

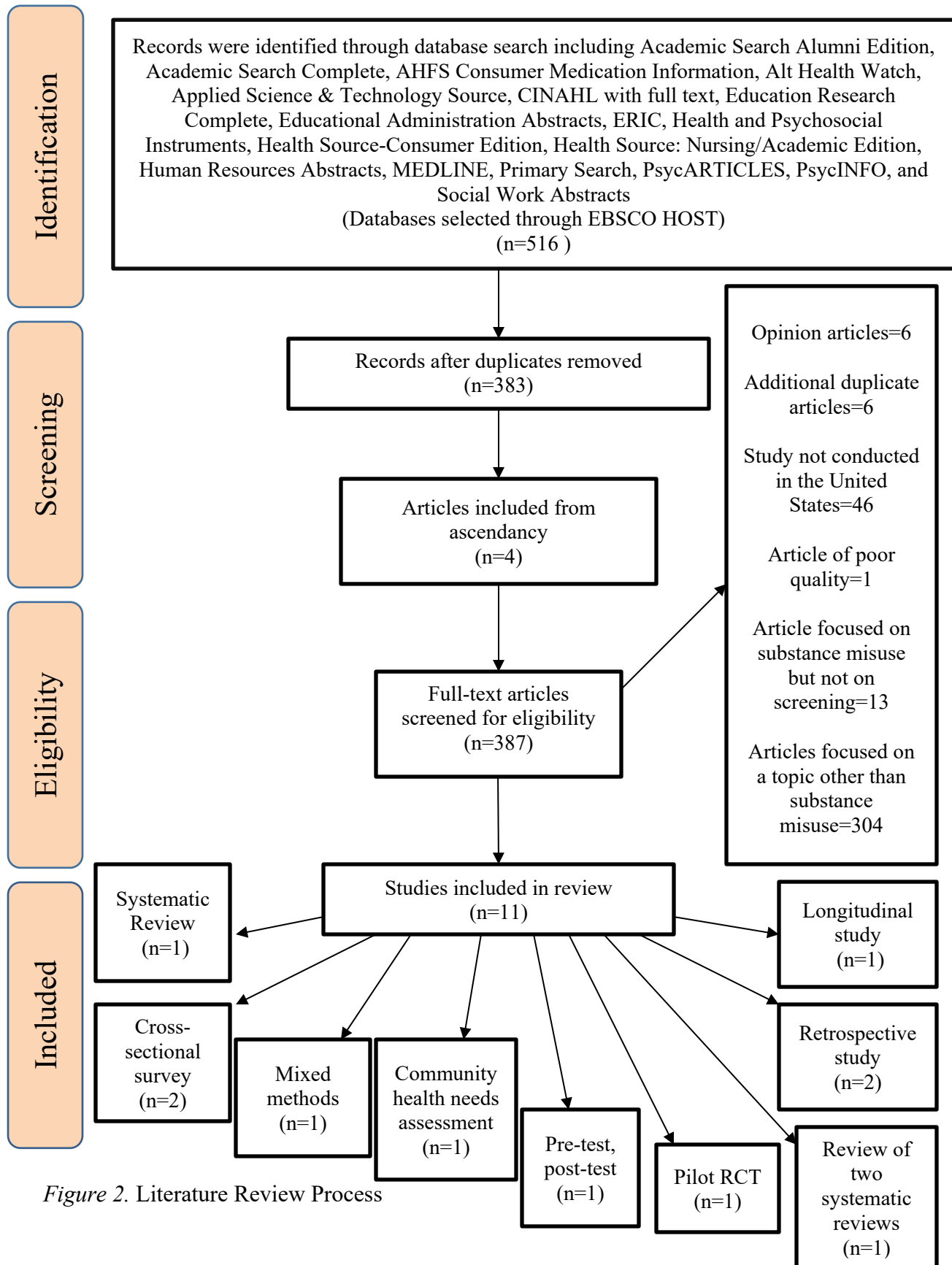


Figure 2. Literature Review Process

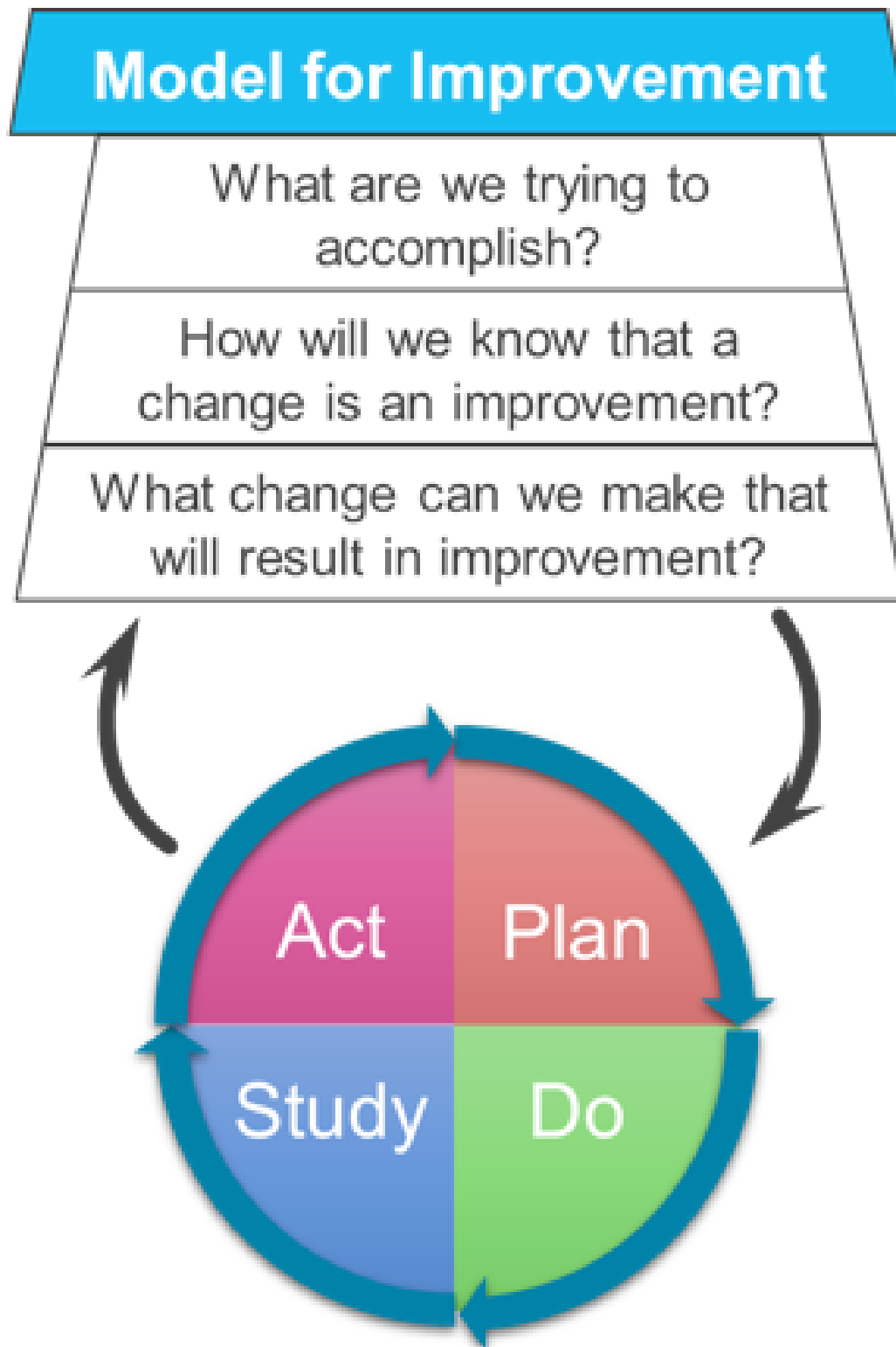





Figure 3. Plan-Do-Study-Act Model (AHRQ, 2015)

**Appendix A
Brief Screen Tool for Alcohol, Drugs, and Mood (PHQ-2)**

Brief health screen

We ask all our adult patients about substance use and mood because these factors can affect your health. Please ask your doctor if you have any questions. Your answers on this form will remain confidential.

Patient name: _____
Date of birth: _____

Alcohol: One drink =  12 oz. beer  5 oz. wine  1.5 oz. liquor (one shot)

	None	1 or more
MEN: How many times in the past year have you had 5 or more drinks in a day?	<input type="radio"/>	<input type="radio"/>
WOMEN: How many times in the past year have you had 4 or more drinks in a day?	<input type="radio"/>	<input type="radio"/>

Drugs: Recreational drugs include methamphetamines (speed, crystal) cannabis (marijuana, pot), inhalants (paint thinner, aerosol, glue), tranquilizers (Valium), barbiturates, cocaine, ecstasy, hallucinogens (LSD, mushrooms), or narcotics (heroin).

	None	1 or more
How many times in the past year have you used a recreational drug or used a prescription medication for non-medical reasons?	<input type="radio"/>	<input type="radio"/>

Mood:	No	Yes
During the past two weeks, have you been bothered by little interest or pleasure in doing things?	<input type="radio"/>	<input type="radio"/>
During the past two weeks, have you been bothered by feeling down, depressed, or hopeless?	<input type="radio"/>	<input type="radio"/>

Appendix B

AUDIT Screening Tool

Alcohol screening questionnaire (AUDIT)

Our clinic asks all patients about alcohol use at least once a year. Drinking alcohol can affect your health and some medications you may take. Please help us provide you with the best medical care by answering the questions below.

Patient name: _____

Date of birth: _____

One drink equals:



12 oz. beer



5 oz. wine



1.5 oz. liquor (one shot)

1. How often do you have a drink containing alcohol?	Never	Monthly or less	2 - 4 times a month	2 - 3 times a week	4 or more times a week
2. How many drinks containing alcohol do you have on a typical day when you are drinking?	0 - 2	3 or 4	5 or 6	7 - 9	10 or more
3. How often do you have four or more drinks on one occasion?	Never	Less than monthly	Monthly	Weekly	Daily or almost daily
4. How often during the last year have you found that you were not able to stop drinking once you had started?	Never	Less than monthly	Monthly	Weekly	Daily or almost daily
5. How often during the last year have you failed to do what was normally expected of you because of drinking?	Never	Less than monthly	Monthly	Weekly	Daily or almost daily
6. How often during the last year have you needed a first drink in the morning to get yourself going after a heavy drinking session?	Never	Less than monthly	Monthly	Weekly	Daily or almost daily
7. How often during the last year have you had a feeling of guilt or remorse after drinking?	Never	Less than monthly	Monthly	Weekly	Daily or almost daily
8. How often during the last year have you been unable to remember what happened the night before because of your drinking?	Never	Less than monthly	Monthly	Weekly	Daily or almost daily
9. Have you or someone else been injured because of your drinking?	No		Yes, but not in the last year		Yes, in the last year
10. Has a relative, friend, doctor, or other health care worker been concerned about your drinking or suggested you cut down?	No		Yes, but not in the last year		Yes, in the last year

0 1 2 3 4

Have you ever been in treatment for an alcohol problem? Never Currently In the past

I II III IV
 M: 0-4 5-14 15-19 20+
 W: 0-3 4-12 13-19 20+

Appendix C

DAST Screening Tool

Drug Screening Questionnaire (DAST)

Using drugs can affect your health and some medications you may take. Please help us provide you with the best medical care by answering the questions below.

Patient name: _____
Date of birth: _____

- methamphetamines (speed, crystal)
- cannabis (marijuana, pot)
- inhalants (paint thinner, aerosol, glue)
- tranquilizers (valium)
- cocaine
- narcotics (heroin, oxycodone, methadone, etc.)
- hallucinogens (LSD, mushrooms)
- other _____

How often have you used these drugs? Monthly or less Weekly Daily or almost daily

1. Have you used drugs other than those required for medical reasons?	No	Yes
2. Do you abuse more than one drug at a time?	No	Yes
3. Are you unable to stop using drugs when you want to?	No	Yes
4. Have you ever had blackouts or flashbacks as a result of drug use?	No	Yes
5. Do you ever feel bad or guilty about your drug use?	No	Yes
6. Does your spouse (or parents) ever complain about your involvement with drugs?	No	Yes
7. Have you neglected your family because of your use of drugs?	No	Yes
8. Have you engaged in illegal activities in order to obtain drugs?	No	Yes
9. Have you ever experienced withdrawal symptoms (felt sick) when you stopped taking drugs?	No	Yes
10. Have you had medical problems as a result of your drug use (e.g. memory loss, hepatitis, convulsions, bleeding)?	No	Yes

0 1

Have you ever injected drugs? Never Yes, in the past 90 days Yes, more than 90 days ago

Have you ever been in treatment for substance abuse? Never Currently In the past

I II III IV
0 1-2 3-5 6+

Appendix D
Literature Matrix

Author and Year	Purpose of Study and Variables	Study Design and Method	Sample and Setting	Data Analysis	Findings	Appraisal
Beaudoin, Merchant, & Clark (2016)	The purpose of this study was to evaluate the Prescription Drug Use Questionnaire Patient Version (PDUOp) for its ability to identify opiate misuse in patients who report opiate use in the last 30 days when they present to the emergency department.	Cross-sectional Statistical evaluation was used to determine the inter-rater reliability and tool validation of the PDUQp against a standard definition of opioid misuse and DSM-5 criteria for prescription opioid use disorder.	n=112 Adults fifty and older; non-institutionalized; English-, Portuguese-, or Spanish speaking; without significant cognitive impairment; and had used prescription opioids within the past 30 days.	STATA 13.0 statistical software was used The respective sensitivity and specificity of the PDUQp was: 44% and 79% for prescription opioid misuse, 38% and 81% for the presence of any prescription opioid use disorder, and 56% and 75%) for moderate to severe prescription opioid use disorder. Data was stratified into	Stratified data results showed 74 adults aged 50–64 years and 38 adults aged 65 years and older completed the study. Over half of the participants in each age category satisfied DSM-5 criteria for prescription opioid use disorder with most classified as mild. Only one participant of the 43 reporting misuse reported “recreational use.”	The PDUQp is useful in the detection of older adults with moderate to severe prescription opioid use disorders. The PDUOp could be a viable tool for identification of opiate use for adults in the emergency department, but will likely need modification for an older population because of the lower sensitivity and specificity at the determined cutoff for their

Author and Year	Purpose of Study and Variables	Study Design and Method	Sample and Setting	Data Analysis	Findings	Appraisal
				age groups.	<p>For both misuse and prescription opioid use disorder, the ideal cutoff scores based on the study sample was 10 for adults 50–64 years old and 7 for adults 65 years and older.</p> <p>Cost impact of substance misuse was not discussed in this study.</p>	<p>younger counterparts.</p> <p>Additional studies looking at alternatives for pain control, sleep, anxiety, and depression could help reduce misuse.</p> <p>Almost all participants in the sample with misuse were categorized under therapeutic misuse. The study implies a general need for improved patient medication education and the need for a tool that can identify mild misuse in older adults.</p>
Cochran, Rosen, McCarthy,	The purpose of this study was to identify the risk	Cross-sectional survey, convenience	n=318 Adult, non-cancer	Descriptive and multivariate statistical	For participants aged 65+, every additional illicit	The population of focus in the study was older adults,

Author and Year	Purpose of Study and Variables	Study Design and Method	Sample and Setting	Data Analysis	Findings	Appraisal
and Engel (2017)	factors and characteristics of prescription opioid misuse among middle aged (50-64) and older (65+) adults compared to younger adults (18-49) to better assist providers in the screening and diagnosis and treatment of opiate abuse.	sample Pharmacists administered a survey on type of opiate prescription(s) filled in addition to the Prescription Opioid Misuse Index (POMI), Drug Abuse Screening Test-10 (DAST), Patient Health Questionnaire-2 (PHQ-2), Primary Care-Posttraumatic Stress Disorder Assessment, the Alcohol Use Disorders Identification Test-C (AUDIT-C), and two questions about health and pain from the Short-Form Survey 12	patients filling opioid prescriptions from four community pharmacies in southwestern Pennsylvania.	analysis was used to analyze data including Poisson multivariable regression analyses. Stratified current opiate abuse risk questionnaires and stratified samples were used to identify trends in age-specific risk factors.	drug use symptom correlated with a 2.4x higher rate of opioid medication misuse behavior. The middle-aged and younger adult groups showed similar increases of opioid misuse with illicit drug use symptoms. The middle-aged group (50-64) also showed increases in opioid misuse with increased PTSD symptoms. Decreasing the time between dosages was identified as the	providing a valuable age-specific data for substance abuse. The survey was voluntary so the stigma surrounding opioid misuse had great potential to impact responses, therefore decreasing the validity of the data. Illicit drug use is a predictor for opiate misuse in all ages, including older adults. The study acknowledges the profound lack of research surrounding SUDs as a health disparity for older

Author and Year	Purpose of Study and Variables	Study Design and Method	Sample and Setting	Data Analysis	Findings	Appraisal
		<p>to assess general health. Pharmacists and pharmacy staff involved with customer service administered the surveys via iPad tablet during the prescription-filling process.</p>			<p>most common misuse behavior. Health care providers, including gerontological social workers and clinical practitioners, must continue to identify risk behaviors for opioid misuse and respond with age-appropriate patient services.</p>	<p>adults even though there is a focus on opioids. The study used the DAST and AUDIT screening tools, reinforcing the widely accepted use of these particular screening tools for substance abuse disorders. This study did not discuss the cost impact of screening for substance abuse.</p>
Han et al. (2018)	The purpose of this study was to evaluate drinking behaviors among older adults using an online screening program and to compare these behaviors to	<p>Retrospective The screening program from AlcoholScreening.org meets the USPSTF standards for brief intervention based on the</p>	<p>n=94,221 The sample included younger adults (21-49 years, 72,172), middle-aged adults (50-65 years, 19,273), and older adults</p>	<p>Logistic regression models were used to find behaviors and intent to reduce or cease alcohol use. Chi-square and t-</p>	<p>There was reported unhealthy drinking in 83% of respondents between 21-49 years, 79% between 50-65 years, and 85% among 65+.</p>	<p>The sample size was very large increasing external validity. The screening was a self-report tool, which limits internal validity.</p>

Author and Year	Purpose of Study and Variables	Study Design and Method	Sample and Setting	Data Analysis	Findings	Appraisal
	<p>younger adults.</p>	<p>screening protocol from the National Institute on Alcohol Abuse (NIAAA) and the U.S. Department of Agriculture (USDA) guidelines for healthy drinking limits.</p> <p>Anonymous results from this online tool were collected and compared to national norms for drinking and to compare the characteristics of respondent likeliness to change after a brief online intervention.</p>	<p>(66-80 years, 2,776) who accessed AlcoholScreening.org from January 1, 2013 until December 31, 2013.</p>	<p>tests were used. Bivariate analyses were used to analyze data statistics between groups.</p>	<p>Older adults showed reported fewer obstacles to change and more willingness to accept care plan to reduce unhealthy drinking.</p> <p>No statistical difference between age groups was found for those wanting to cut back on their drinking.</p> <p>Integration of screening tools into workflow has been identified as a common barrier to screening programs.</p> <p>Web-based</p>	<p>There was no way to know if respondents visited the site more than one time.</p> <p>There may be a challenge with older adults who are not technically inclined to utilize a web-based program. The population in this study had already accessed the AlcoholScreening.org web-based program, showing proficiency with a computer-based screening program.</p> <p>Web-based programs have the potential to improve access to care, especially</p>

Author and Year	Purpose of Study and Variables	Study Design and Method	Sample and Setting	Data Analysis	Findings	Appraisal
					<p>screening and intervention has the capacity to be widely used among older adults and can be used without a great burden on workflow.</p> <p>There is a high rate of alcohol abuse in older adults and little research on screening and intervention.</p>	<p>for older adults in more rural areas.</p> <p>Web-based programs can decrease screening and treatment costs.</p> <p>Adults 81 and older were excluded due the large amounts of unlikely “99” responses for age and the few number of responses for this age group, therefore leaving out an important part of the population of interest for this review.</p>
Henderson, Babu, Merchant, & Beaudoin (2015)	The purpose of this study was to evaluate a pilot screening of older adults and	Mixed-methods Patients were asked to respond to author-created	n=88 older adults visiting Rhode Island Hospital ED in June and July of 2011	Patients reporting current daily opioid use were screened with the 31-item	19% of respondents reported current opioid use and 49% reported	ED care providers should screen older adults for prescription opioid misuse and

Author and Year	Purpose of Study and Variables	Study Design and Method	Sample and Setting	Data Analysis	Findings	Appraisal
	determine the prevalence of prescription opioid use and the need for opioid misuse interventions among older adults.	questions on health care characteristics and opioid use behaviors, administered via computer tablet; Prescription Drug Use Questionnaire (PDUQp) instrument measured drug misuse		PDUQp. For this screen, a cutoff score of ≥ 10 was used to detect both opioid misuse and abuse	previous use. 5% of total respondents had PDUQp scores suggesting further intervention for opioid misuse was needed.	related problematic behaviors. The PDUQp is a validated screening tool and is effective in the screening of older adults. Limitations were that all of the participants were English-speaking and white, decreasing external validity of results.
Kuerbis, et al. (2015)	The purpose of this study was to determine the initial efficacy of a mailed screening and brief intervention to reduce risky drinking behaviors in persons aged 50	Pilot randomized control trial Patients were randomized to either receive personalized mailed feedback outlining their specific risks associated with	n=86 patients from a community-based, academic, primary care network: the University of California at Los Angeles Department of Medicine	T-tests were used to compare groups at baseline for continuous variables and chi-square tests for categorical variables. ANCOVA and linear regression	Mean age was 64.7 years. Respondents reported drinking a mean of 15.1 – 7.9 drinks per week. At 3 months, fewer intervention	This study was the first to evaluate a standalone mailed SBI for older adults identified with unhealthy drinking habits. This was a pilot study, so the

Author and Year	Purpose of Study and Variables	Study Design and Method	Sample and Setting	Data Analysis	Findings	Appraisal
	and older.	alcohol use and education on alcohol and aging, or nothing. They were screened using the Comorbidity Alcohol Risk Evaluation Tool (CARET) at baseline and at three months after receiving	Community Offices and Primary Care Network.	analyses of baseline and three-month results of the CARET screening.	group participants than controls were at-risk drinkers (66% vs. 88%), binge drinking (45% vs. 68%), using alcohol with a medical or psychiatric condition (3% vs. 17%), or having symptoms of such a condition (29% vs. 49%).	sample size was small. To increase the external validity, the study will need to be conducted on a full scale. This study also discusses the prevalence misuse of prescription pain medications and illegal drugs in the “Baby Boom” generation and supports the screening for substances other than alcohol.
Loscalzo, Sterling, Weinstein, & Salzman (2017)	The purpose of this study was to determine if the decreased quality of life of adults 65+ who screened positive for unhealthy drinking behaviors is	Community needs assessment Subjects voluntarily completed measures of quality of life (QOL), depression, and	n=249 urban dwelling, lower socioeconomic status 65+ individuals participating in a major Northeast city Senior Center (SC) sponsored activities.	Statistical analysis was conducted using descriptive statistics. Age appropriate standardized norms were used to determine the prevalence of	Random sampling was not possible due to inconsistent activity attendance. Alcohol or substance abuse was reported by	Alcohol use was predictive of depression, global psychological distress, and decreased quality of life. This tools used in this study had

Author and Year	Purpose of Study and Variables	Study Design and Method	Sample and Setting	Data Analysis	Findings	Appraisal
	<p>generalizable to older persons in urban dwelling, lower socioeconomic status.</p> <p>The authors also sought to identify potential treatment needs of this population.</p>	<p>substance abuse. Measures used included the Psychological General Well-Being Schedule, the Geriatric Depression Scale-15, and the Alcohol Use Disorders Identification Test (AUDIT).</p>	<p>n=34 SC staff</p>	<p>substance misuse and psychosocial disorders. Information regarding perceived needs and barriers to care were collected along with categorization of the data/information source.</p> <p>A SC staff survey was also conducted to determine behavioral health needs.</p>	<p>over 20% of respondents, with 3.4% of respondents engaged in maladaptive alcohol use.</p> <p>Scores on the AUDIT were predictive of increased depression anxiety, lower general wellbeing, and decreased self-control.</p> <p>There was a general consensus among SC attendees and staff that there is a lack of behavioral health services for older adults.</p>	<p>strong internal validity; however, it did not uncover any unexpected findings.</p> <p>The survey did not specify the drugs of misuse.</p> <p>This community assessment points to the need for more specialized treatment programs to address the unique needs of urban lower-income older adults.</p> <p>This study reinforces the notion that screening and treatment programs need to be conducted in primary care.</p>

Author and Year	Purpose of Study and Variables	Study Design and Method	Sample and Setting	Data Analysis	Findings	Appraisal
					41% of SC staff encountered SC attendees under the influence of drugs or alcohol within six weeks of the survey.	<p>This study discusses the financial impact of substance misuse and specifically, the lack of Medicare reimbursement as a billable service for substance misuse treatment.</p> <p>Further research is needed to determine which pharmacologic substances are most abused by older adults.</p>
Maree, Marcum, Saghafi, Weiner, and Karp (2016)	The purpose of this study was to assess the prevalence, risk factors, and treatments for opiate and benzodiazepine prescription misuse in older	<p>Systematic Review</p> <p>A database search was conducted using PubMed, PsycINFO, and EMBASE. The search included peer-reviewed</p>	<p>n=15 articles</p> <p>Review articles for opioid and benzodiazepine prescription drug misuse in patients who were 65 years of age and older.</p>	<p>PRISMA method was used for article analysis.</p> <p>Articles were assessed for the following: prevalence of prescription drug misuse related to</p>	Thirteen studies focused on the prevalence of prescription drug misuse, one study identified risk factors for abuse, and one study reported details on	The single study that reviewed risk factors for misuse was set in Canada and focused on benzodiazepine use as opposed to opiates, decreasing its generalizability to

Author and Year	Purpose of Study and Variables	Study Design and Method	Sample and Setting	Data Analysis	Findings	Appraisal
	adults.	<p>articles on opiate and benzodiazepine misuse.</p> <p>Reference lists were also reviewed for key identified articles and geriatric journals</p>		<p>doctor shopping behavior (moving from doctor to doctor to try and obtain prescriptions), morbidity and mortality, trends in prescribing, frequency of substance use disorders and non-prescription use of medications, patient comorbidities, and experiences of long-term benzodiazepine users.</p>	<p>provider education.</p> <p>The most specific and sensitive screening results came from a study asking about attempts to stop and tolerance of medications.</p>	<p>a U.S. population.</p> <p>There is selection bias in several of the studies and probable underreporting of misuse due to stigma related to substance abuse disorders.</p> <p>This is the only systematic review found during this literature review addressing substance abuse disorders in older adults.</p>
Paolillo et al. (2018)	The purpose of this study was to validate the Ecological momentary assessment (EMA) and determine predictors of	<p>Pre and post surveys</p> <p>Two groups of older adults with and without HIV were assessed for 14 days and completed up to</p>	<p>n=35 (22 HIV-positive, 13 HIV-negative) older adults aged 50–74</p>	<p>Alcohol and cannabis were evaluated separately using two sets of bivariate linear regressions.</p> <p>Participants</p>	<p>Participants completed an average of 89.5% of possible EMA surveys.</p> <p>EMA self-reported alcohol</p>	<p>EMA-measured alcohol and cannabis use has convergent validity among older adults with and without HIV infection.</p>

Author and Year	Purpose of Study and Variables	Study Design and Method	Sample and Setting	Data Analysis	Findings	Appraisal
	<p>substance use among older adults with and without HIV infection.</p>	<p>four smartphone-based surveys per day.</p> <p>Baseline alcohol and cannabis use was compared to use after 30 days of daily surveys.</p> <p>Participants also completed a survey after the 14 days about their experiences with the EMA system.</p>		<p>using alcohol or cannabis more than once during the 14-day period were used to evaluate predictors of mood and pain.</p> <p>Descriptive statistics were used to stratify results by demographic, psychiatric characteristics, substance use, and by HIV and Hepatitis C characteristics.</p>	<p>and cannabis use were significantly positively correlated with laboratory-assessed, self-reported days of alcohol and cannabis used and quantity of alcohol and cannabis used in the 30 days prior to baseline assessment.</p>	<p>EMA has the ability to detect patterned behaviors preceding use and may be effective to inhibit use with a time-sensitive program prompt.</p> <p>Alcohol and cannabis are the two most commonly used substances among older adults.</p> <p>EMA is a highly accessible, feasible, tolerable, and valid method for assessing substance use across many clinical and non-clinical populations. It has the ability to improve access to care for older</p>

Author and Year	Purpose of Study and Variables	Study Design and Method	Sample and Setting	Data Analysis	Findings	Appraisal
						<p>adults and older adults suffering from HIV.</p> <p>This study has limitations due to small sample size.</p>
Savage & Finnell (2015)	<p>The purpose of this review was to examine the changing focus from two systematic reviews written ten years apart that go from detecting alcohol use disorders to detecting alcohol-related health risks across the continuum of use in older adults.</p>	<p>REVIEW OF REVIEWS review</p> <p>The method utilized included a comparison of two systematic review publications for screening of older adults to prevent or reduce the harms associated with alcohol use.</p>	<p>n=2</p> <p>Two articles:</p> <p>O’Connell et al. (2004) and Taylor, Jones, & Denning (2014)</p>	<p>Topics compared included: the focus and definition of terms; comparison of screening tools; strengths and gaps; and recommendations by the author for further research.</p>	<p>There is consistency over time that risky alcohol behaviors are a serious health concern for older adults.</p> <p>There has been a shift from simply identifying alcohol use disorders (AUDs) to identifying alcohol use behaviors on a continuum.</p> <p>Both articles acknowledge the need for age-</p>	<p>This review supports the importance of systematically screening older adults to prevent or reduce the harms associated with risky alcohol behaviors.</p> <p>This review also shows more recent efforts to reduce age-related stigma of older adults in screening behaviors.</p> <p>The continuum may correlate to a different level of</p>

Author and Year	Purpose of Study and Variables	Study Design and Method	Sample and Setting	Data Analysis	Findings	Appraisal
					appropriate screening tools and additional research.	risk according to age, necessitating age-specific research with the tools used in the two studies.
Schonfeld, et al. (2015)	The purpose of this study was to compare substance abuse and SBIRT services for by the Florida BRITE (BRief Intervention and Treatment of Elders) Project across four types of service settings.	<p>Longitudinal</p> <p>Staff screened for substance abuse. Persons at low risk received feedback about screening, persons at moderate to high risk received brief treatment using motivational interviewing, and highest severity led to referral to the appropriate treatment.</p> <p>A six-month follow-up was conducted on a random sample of respondents.</p>	<p>n=29 service settings</p> <p>Data were collected over five years from September 15, 2006 until September 14, 2011.</p> <p>Onsite services (n = 12) (e.g., hospital emergency department, urgent care, trauma hospital, or primary care); aging services, or services provided in-home (n=5); in a mental health setting (n=7); or a substance abuse</p>	<p>85,001 responses were recorded.</p> <p>Descriptive statistics were used to describe the various screen settings.</p> <p>The x2 test and paired t-tests were used to analyze differences from baseline between settings, respondent demographic, level of risk outcomes, and services received.</p>	<p>8165 people were at moderate or high risk for substance misuse.</p> <p>Negative screens were often not recorded during the first year, but improved from years two through five.</p> <p>Home aging services and onsite healthcare agencies were more likely to receive SBIRT.</p> <p>About one-third for those who were found to be</p>	<p>Many people were in treatment because of driving under the influence conviction and might not have been screened if not mandated to attend therapy.</p> <p>The study was limited to Florida. Other states with more representative populations would increase generalizability of results.</p> <p>Recommendation of the study was to adjust</p>

Author and Year	Purpose of Study and Variables	Study Design and Method	Sample and Setting	Data Analysis	Findings	Appraisal
			treatment provider agency (n=5).		at moderate to high risk with interventions completed the six-month follow-up. Elder-friendly assessments are important to success of screening although there is no standardized screening tool.	screening to accommodate for prescription medication use although it was not addressed during data collection. This study discussed sustainability though grants and financial benefit of SBIRT.
Skaar & O’connor (2017)	The purpose of this study was to identify potentially inappropriate medication (PIM) use by older adults visiting the dentist and related adverse experiences secondary to prescribing medications.	Retrospective The authors assessed Medicare Current Beneficiary Survey (MCBS) data set for community-dwelling older adults with dental care visits and reported national prevalence estimates of	n=4,000 beneficiaries 65 and older The rotating panel of survey respondents changes every year due to death, refusal to participate, or rotation out of the survey.	The American Geriatrics Society (AGS) Beers Criteria was used to identify PIM. Statistical analysis was conducted on demographic and socioeconomic characteristics, health status, prescription drug reporting, and	Approximately 60% of community-dwelling older adults with dental care visits received a PIM. 28. 3% reported prescriptions for 2 or more Beers criteria drugs. Antiplatelet and anticholinergic	Polypharmacy is common in older adults. The updated Beers criteria include: medications generally to avoid, medications to avoid in older adults with specific ailments due to risk of

Author and Year	Purpose of Study and Variables	Study Design and Method	Sample and Setting	Data Analysis	Findings	Appraisal
		<p>Beers criteria medication prescribing.</p> <p>This dataset is from random sampling by the National Opinion Research Center at the University of Chicago of 15,000 Medicare beneficiaries 3-4 times per year over the last 20 years.</p>		<p>health care use, including dental services.</p> <p>The authors used logistic regression to identify socio-demographic and health-related characteristics associated with PIM.</p> <p>Adverse event prevalence and descriptions were also reported.</p>	<p>medications were related to adverse drug events (ADEs).</p>	<p>exacerbation, medications to use with caution, selected drug-drug interactions to avoid, drugs with dose considerations for kidney and liver function, and drugs with strong anticholinergic properties.</p> <p>Screening for risk of medication using Beers criteria is supported to identify risk for drug misuse and ADEs.</p>

Appendix E

Education for Clinical Staff

Standard Drink Size: Liquor 1.5oz.

Above: 1.5 oz 40% alc/vol = 1.5% ABV STANDARD

Above: Long Island Iced Tea, 3 oz alc liquor NONSTANDARD

Low-risk drinking limits

	Drinks per week	Drinks per day
Men	14	4
Women	7	3
All ages >65	7	3
Pregnancy	0	0

12 oz beer 5 oz glass of wine 1.5 oz (shot) of liquor

Drug Use

Prescription Drug Use

- Overdose
- Increased risk of adverse reaction
- Diversion
 - Assess for access to medicine cabinets
 - Review State Board of Pharmacy website

Illicit Substance Use

- Overdose
- Hepatitis
- Psychotic symptoms
- Prenatal exposure
 - Low birth weight
 - Delayed development
- Motor vehicle crashes
- Addiction
- Cardiac arrest
- STDs, HIV
- Comorbid mental disorders
- Respiratory illness
- Arrest, incarceration

Increased Risk = Increased Chance of Misuse

- Biology: Genetics account for up to 40% of a person's risk
- Environment: Quality of life is correlated with increased risk of addiction
- Development: Early use increases likelihood of addiction development

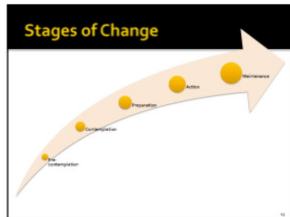
Substance Misuse and Age
Section 2

-THE GOLDEN RULE-

Each person is **UNIQUE** and will be at a different stage of readiness to discuss substance misuse.

The Universal Approach...

- Treat each person with respect
- Do NOT make assumptions
- Be empathetic
 - You have not walked in their shoes



Young Adults

- Increased vulnerability due to lack of experience
- Impact on pregnancy
 - Neonatal Abstinence Syndrome (NAS)
- Opioid misuse among adults ages 18 to 25 decreased from 11.5% to 8% (Hedden, 2015)

Young Adults

All of these causes are often substance related.

Leading Mortality of People Ages 10-24

Motor vehicle crashes	30%
Other unintentional injuries	16%
Homicides	16%
Suicides	12%
Total	74%

Hedden, et al., 2007

Older Adults: Physiological Changes

- Increased anti-cholinergic effect of medication
- Increased incidence of chronic pain
 - More comorbidities
 - Change in dietary status
- Increased frequency of dementia
- Increased chance of organ failure impacting metabolism
- Physiological Changes

Older Adults: Psychosocial Changes

- Increased chance of loneliness and isolation
- Depression
- Previous SUD or alcoholism
- Polypharmacy
 - Delay in naloxone administration
- First responders will not always perceive decrease in level of consciousness as opiate-related

Remove Barriers
Section 3

Barriers to Addressing Misuse

- Stigma
- Time constraints
- Fear of upsetting the patient
- Unaware of resources for treatment
- Personally uncomfortable with the topic
- Believing that patients are lying or hiding actual use

Cultural Awareness Exercise

10 minutes

Awareness of Culture, Power, and Privilege


- Race
- Ethnicity
- Gender
- Class
- Sexual orientation
- Religion
- Cultural influence

Reducing Stigma Within Healthcare

Stigma causes people to feel shame for something that is out of their control.
Stigma prevents people from seeking the help they need.

YOU can reduce stigma...

- ✓ Talk openly and respectfully about substance misuse
- ✓ Educate yourself and others
- ✓ Be conscious of language you use
- ✓ Encourage equality between physical and mental illness
- ✓ Speak up when someone is being stigmatized
- ✓ Show compassion for those suffering from SUDs
- ✓ Empower the patients rather than evoking shame
- ✓ Be honest about treatment
- ✓ Avoid self-stigma



Words matter!

Word	How it's used	Why it's problematic
Person suffering from substance use disorder	Person with substance use disorder, addict, junkie, druggie, etc.	Words such as "addict" or "junkie" are stigmatizing and are likely to increase stigma and negatively impact performance. Using person-centered language reduces stigma.
Positive or negative screen	Clean or dirty urine	Only is associated with this, leaving stigma.
Client who was diagnosed as someone	Drug addict	This is person-centered language.
Recommendation to use	Relapse, taking "off the wagon"	This is less damaging for the patient emotionally.

Things to remember...

- Be an active listener
- Do not use stigmatizing language
- Do not make assumptions
- Do not "tell" the person how their recovery should go
- Be kind and supportive



Clinical Tools Section 4

Screening Tools

- **Brief Screen**
 - 4 questions
 - One gender-specific question about alcohol use
 - One question about drug use
 - Two questions about mood (PHQ-2)
- **AUDIT**
 - 10 question screening for alcohol use
- **DAST**
 - 10 question screen for substance use

Brief Screen

Question	Yes	No
1. How often do you drink alcohol?	0-4	0-1
2. How many drinks do you have on a typical day when you drink?	0-2	0-1
3. How often do you have a drink or two?	0-2	0-1
4. How often do you have six or more drinks on one occasion?	0-2	0-1

AUDIT

Question	0	1	2	3	4	5	6	7	8	9	10
1. How often do you drink alcohol?	0	1	2	3	4	5	6	7	8	9	10
2. How many drinks do you have on a typical day when you drink?	0	1	2	3	4	5	6	7	8	9	10
3. How often do you have a drink or two?	0	1	2	3	4	5	6	7	8	9	10
4. How often do you have six or more drinks on one occasion?	0	1	2	3	4	5	6	7	8	9	10
5. How often do you feel unable to cut down on drinking?	0	1	2	3	4	5	6	7	8	9	10
6. How often do you feel guilty about drinking?	0	1	2	3	4	5	6	7	8	9	10
7. How often do you lose control of how much you drink?	0	1	2	3	4	5	6	7	8	9	10
8. How often do you drink more than you intended to?	0	1	2	3	4	5	6	7	8	9	10
9. How often do you drink to relieve feelings of stress, anxiety, or depression?	0	1	2	3	4	5	6	7	8	9	10
10. How often do you drink to feel better about the way you look?	0	1	2	3	4	5	6	7	8	9	10

DAST

Question	0	1	2	3	4	5	6	7	8	9	10
1. How often do you use any of the following substances?	0	1	2	3	4	5	6	7	8	9	10
2. How often do you use any of the following substances?	0	1	2	3	4	5	6	7	8	9	10
3. How often do you use any of the following substances?	0	1	2	3	4	5	6	7	8	9	10
4. How often do you use any of the following substances?	0	1	2	3	4	5	6	7	8	9	10
5. How often do you use any of the following substances?	0	1	2	3	4	5	6	7	8	9	10
6. How often do you use any of the following substances?	0	1	2	3	4	5	6	7	8	9	10
7. How often do you use any of the following substances?	0	1	2	3	4	5	6	7	8	9	10
8. How often do you use any of the following substances?	0	1	2	3	4	5	6	7	8	9	10
9. How often do you use any of the following substances?	0	1	2	3	4	5	6	7	8	9	10
10. How often do you use any of the following substances?	0	1	2	3	4	5	6	7	8	9	10

Be Aware of Your Resources

- Care coordination for patient requiring treatment
 - Medication Assisted Treatment (MAT)
 - Suboxone
 - Naltrexone (Vivitrol)
 - Methadone
 - Therapy/Counseling
 - Behavioral Health (PBH)
 - Health educator
 - 12-Step programs

More Resources

- Community recovery coaches
- Exercise
- What is a warm hand-off?
- Know your facility policies for controlled substance prescribing
 - West Virginia Board of Pharmacy (WVBOP)
 - Beers List
 - Know adjusted dosing for older adults

Preview of SBIRT

Screening, Brief Intervention, Referral to Treatment

"SBIRT is a public health approach to the delivery of early intervention and treatment services for people with substance use disorders and people who are at risk of developing these disorders."

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Do you have any questions?
THANK YOU FOR YOUR ATTENTION!

Feel free to contact me with any questions regarding this educational material.

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Appendix F
Pre-test/Post-test

Participant Number: _____

Pre-test _____

Date: _____

Post-test _____

1. Which of the following WOULD NOT generally be considered to represent “one drink?”
 - a. A 40-ounce bottle of Malt Liquor
 - b. A 1.5-ounce shot of 80 proof liquor
 - c. A 5-ounce glass of wine
 - d. A 12-ounce bottle of beer

2. Which of the following would be considered to be above the recommended drinking limits?
 - a. A 45-year-old man who drinks 12 beers over the course of one week
 - b. A 45-year-old man who drinks a 6-pack of beer on Friday night
 - c. A 23-year-old woman who drinks 4 glasses of wine over the course of one week
 - d. A 67-year-old woman who drinks 7 shots of liquor over the course of one week

3. What proportion of individuals struggling with a substance abuse disorder have also experience trauma?
 - a. 80%
 - b. 20%
 - c. 40%
 - d. 70%

4. The AUDIT would be used to screen which of the following conditions?
 - a. Alcohol use in adults age 18 and older
 - b. Alcohol use in youth under age 18
 - c. Illicit drug use in adults age 18 and older
 - d. Illicit drug use in youth under age 18

5. Which of the following statements about the DAST-10 is accurate?
 - a. It is designed to screen for risky alcohol use
 - b. It is a measure of an individual’s readiness for change
 - c. It contains questions to screen for at-risk drug use
 - d. It is very similar to the Confidence Ruler

6. Stigma can do all of these EXCEPT:

- a. Cause a person to feel shame for something that is out of their control
 - b. Prevents people from seeking the help they need
 - c. Encourage equality between physical and mental illness
 - d. Prevent someone from speaking openly about concerns.
7. Choose the word below that is not stigmatic.
- a. Junkie
 - b. User
 - c. Addict
 - d. Person suffering from substance abuse disorder
8. What does SBIRT stand for?
- a. Systems, Brief Intervention, Referral training
 - b. Screening, Brief Intervention, Referral to Treatment
 - c. Substances, Bargaining, Intervention, Referral to Treatment
 - d. Screening, Brief Intervention, Reference Targets
9. Which below is NOT a resource?
- a. Tramadol
 - b. 12-step Programs
 - c. Medication-assisted treatment (MAT)
 - d. Beers List
10. The best example of a “warm handoff” is:
- a. Introducing a patient to other people with substance abuse disorders in the community.
 - b. Leaving the flag up outside of a clinic door to notify the provider a patient is ready.
 - c. Waiting for behavioral health staff to come see a patient and introducing them in person.
 - d. Calling a patient to follow-up on medications.

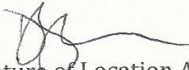
**Appendix G
Budget**

<i>BUDGET CATEGORIES</i>	<i>PERSONAL FUNDS</i>	<i>ORGANIZATIONAL CONTRIBUTIONS</i>
ADMINISTRATIVE COSTS	Data collection by this researcher for 2 hrs/wk x 4 weeks x \$60/hr (avg wage) = \$480	Zoom meeting licensure already owned by clinic, Free
MARKETING	Posters to announce training dates and data updates \$20	
EDUCATIONAL MATERIALS/ INCENTIVES	Motivational Interviewing courses for project leader \$350	Patient education packets with SBIRT training materials with and implementation policies \$5 per employee and myself, 10 ppl x \$5 = \$50 Application for CMEs will occur through Medscape SBIRT program and SAMHSA Free
HOSPITALITY (food, room rentals, etc.)	Hotel stay at Ithaca College \$240 Lunch provided for staff during break from training sessions \$10 per person x 20 ppl = \$200	
PROJECT SUPPLIES (office supplies, printing, etc.)	Miscellaneous project supplies, ie. Ink, paper. \$10	Miscellaneous project supplies, ie. Ink, paper. \$20
TRAVEL EXPENSES	Travel to Ithaca College for MI training \$150	
TOTALS	\$1,865	\$536
\$1075 = Personal costs \$70 = Costs to Primary Care = In-kind contributions (SAMHSA/Medscape/Health System)		

**Appendix H
Letter of Support**

Letter of Permission to Conduct Research

I, Dr. Dawn Jones, Shenandoah Community Health Center Medical Director, give my permission for Kelly Lopez, FNP-BC to conduct her study entitled "A Pilot Project to Improve Substance Misuse Screening of Older Adults in Primary Care Using Screening, Brief Intervention, and Referral to Treatment at Shenandoah Community Health Center, Adult Primary Care


Signature of Location Administrator

Dawn B. Jones MD, FACP
Printed Location Administrator Name

8/30/19
Date

Appendix J
Result Tables

Table 1. Demographic Data of Participants

Characteristics	Number	Percentage
<i>Age</i>		
18-29	n=0	0%
29-39	n=4	28.6%
39-49	n=4	28.6%
49-59	n=5	35.7%
59-69	n=1	7.1%
69+	n=0	0%
<i>Gender</i>		
Male	n=2	14.3%
Female	n=12	85.7%
Other		
<i>Race</i>		
White (non-Hispanic)	n=12	85.7%
White (Hispanic)	n=1	7.4%
Black	n=1	7.4%
Asian	n=0	0%
Other	n=0	0%
<i>Position</i>		
Physician	n=3	21.4%
Nurse Practitioner	n=3	21.4%
Social Worker	n=1	7.4%
Registered Nurse	n=4	28.6%
Licensed Practical Nurse	n=2	14.3%
Medical Assistant	n=0	0%
Interpreter	n=1	7.1%

Table 2. Pre-post Test Responses

Questions	A n=12	B n=12	C n=3
1. Which of the following WOULD NOT generally be considered to represent “one drink?” e. A 40-ounce bottle of Malt Liquor f. A 1.5-ounce shot of 80 proof liquor g. A 5-ounce glass of wine h. A 12-ounce bottle of beer	91.7%	91.7%	66.7%
2. Which of the following would be considered to be above the recommended drinking limits? e. A 45-year-old man who drinks 12 beers over the course of one week f. A 45-year-old man who drinks a 6-pack of beer on Friday night g. A 23-year-old woman who drinks 4 glasses of wine over the course of one week h. A 67-year-old woman who drinks 7 shots of liquor over the course of one week	58.3%	91.7%	100%
3. What proportion of individuals struggling with a substance abuse disorder have also experienced trauma? a. 80% b. 20% c. 40% d. 70%	33.3%	83.3%	66.7%
4. The AUDIT would be used to screen which of the following conditions? e. Alcohol use in adults age 18 and older f. Alcohol use in youth under age 18 g. Illicit drug use in adults age 18 and older h. Illicit drug use in youth under age 18	66.7%	91.7%	100%
5. Which of the following statements about the DAST-10 is accurate? a. It is designed to screen for risky alcohol use b. It is a measure of an individual’s readiness for change c. It contains questions to screen for at-risk drug use d. It is very similar to the Confidence Ruler	41.7%	83.3%	66.7%

<p>6. Stigma can do all of these EXCEPT:</p> <ul style="list-style-type: none"> a. Cause a person to feel shame for something that is out of their control b. Prevents people from seeking the help they need c. Encourage equality between physical and mental illness d. Prevent someone from speaking openly about concerns. 	83.3%	91.6%	100%
<p>7. Choose the word below that is not stigmatic.</p> <ul style="list-style-type: none"> a. Junkie b. User c. Addict d. Person suffering from substance abuse disorder 	100%	100%	100%
<p>8. What does SBIRT stand for?</p> <ul style="list-style-type: none"> a. Systems, Brief Intervention, Referral training b. Screening, Brief Intervention, Referral to Treatment c. Substances, Bargaining, Intervention, Referral to Treatment d. Screening, Brief Intervention, Reference Targets 	91.7%	100%	100%
<p>9. Which below is NOT a resource?</p> <ul style="list-style-type: none"> a. Tramadol b. 12-step Programs c. Medication-assisted treatment (MAT) d. Beers List 	91.7%	100%	100%
<p>10. The best example of a “warm handoff” is:</p> <ul style="list-style-type: none"> a. Introducing a patient to other people with substance abuse disorders in the community. b. Leaving the flag up outside of a clinic door to notify the provider a patient is ready. c. Waiting for behavioral health staff to come see a patient and introducing them in person. d. Calling a patient to follow-up on medications. 	100%	91.6%	100%

Table 3. Pre-post Test Scores

Participant #	Pre-test score	Post-test score	2-week Post-test
1	80%	90%	
2	60%	90%	90%
3	80%	100%	
4	90%	100%	
5	60%	90%	
6	80%	90%	100%
7	60%	90%	
8	80%	90%	
9	100%	100%	
10	80%	60% decrease	80%
11	80%	90%	
12	Not submitted	Not submitted	
13	60%	90%	
14	Not submitted	Not submitted	
Average Total Score	75.8%	90%	90%

Table 4. Likert Scale Responses

<i>Question</i>	<i>Likert Score</i>
The program met my expectations and learning needs	4.71
The information was presented at an appropriate learning level for this stage in my career.	4.79
The program format was effective.	4.79
The presenter was knowledgeable of the material.	4.93
I learned skills and concepts that will help me be more effective in my work.	4.64
The program provided med with new ideas and resources.	4.86
I plan to use what I learned in my daily work.	4.57