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Substance Use Disorder: Primary Care Screening

Shari P. Shaltout
University of Massachusetts Amherst

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Substance Use Disorder: Primary Care Screening

Shari Shaltout

College of Nursing, University of Massachusetts, Amherst

Chair: Jeungok Choi

Mentor: Kimberly Mazur MD

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Abstract

Substance use disorder is a significant problem in the United States causing considerable distress and cost to the healthcare system as well as familial, community, and societal resources. Based on evidence-based research, a statement by the United States Preventive Services Task Force in 2015, recommends substance use disorder screening for adults in the primary care setting. A review of the literature concerning screening tools for substance use disorder resulted in twelve studies being included. The purpose of this project is to determine if the more comprehensive substance use disorder screening tool, ASSIST, identifies more at risk patients than the current CAGE-AID screening tool in order to improve early identification and intervention. The ASSIST questionnaire consists of 8 questions that investigate past and current use of substances.

Developed by the World Health Organization (WHO), it has been shown to be reliable and valid. Patients 21-55 years from one primary care clinic in NJ were asked to voluntarily participate in a substance use disorder screening using the ASSIST screening tool. This tool was administered at well and follow up visits. The results were compared to the results of the CAGE-AID screening tool which is already part of the intake. Results showed that of the 36 people interviewed, ASSIST (n=14, 38.8%) identified more people at moderate or high risk compared to CAGE-AID (n=1, 2.7%). While this was a small study, more investigation is warranted as the results suggest that a more comprehensive screening tool is identifying those at risk more often especially for those in the medium risk category. Those patients in need of intervention are more likely to be identified with ASSIST and intervention can be begun as early as possible.

Keywords: primary care, screening tools, substance use disorder

Substance Use Disorder: Primary Care Screening

Introduction

Risk of opioid dependence among adults in the United States is high. In 2017, an estimated 1.7 million people suffered from substance use disorders related to prescription opioid pain relievers, and a little less than half that number suffered from a heroin use disorder. In that same year 47,000 people died of opioid overdoses (National Institute on Drug Abuse [NIDA], 2020). Early identification and intervention of opioid dependence is one way to combat this national opioid crisis. This proposal seeks to compare a more detailed substance use disorder screening tool (ASSIST) to a presently used shorter screening tool (CAGE-AID) to see if more patients would be identified as at risk. Patients identified with substance use disorder risk using either tool were offered intervention. For those at medium risk, this consisted of brief intervention in the primary care setting. Brief intervention concentrates on increasing insight and awareness on substance use disorder and uses cognitive behavioral based counseling to encourage motivation for change (Substance Abuse and Mental Health Administration [SAMHSA], 2020). For those at high risk referrals were given to specialist services consisting of in patient or intensive outpatient treatment depending on the level of risk and patient preference. The purpose of this project was to determine the most efficacious screening tool for use in primary care settings to ensure early intervention as one way to reduce opioid addiction.

Background

Substance use disorders are a significant problem in the United States causing considerable distress and cost to both the healthcare system as well as familial, community, and societal resources. The total financial burden in the United States, including criminal

justice, child and family assistance, and lost productivity costs as well as health care and mortality costs reached an estimated \$170.9 billion in 2017 (Davenport et al., 2019, p.5). In 2017, according to the Centers for Disease Control (CDC), 192 overdose deaths occur every day in the United States (Wilson et al., 2020). While in 2018 there was a 4.1% decline from 2017 in drug overdose deaths, there was a 10% increase in overdose deaths involving synthetic opioids (Wilson et al., 2020). This is indicative of the rise in use of illicitly manufactured fentanyl and fentanyl analogs (Wilson et al., 2020). A report by the NIDA (2019) records more than 70,200 drug overdose deaths in 2017 which translates to a rate of 21.7 per 100,000 persons. In NJ, where the DNP project was implemented, the rate was recorded as 30 deaths per 100,000 persons in 2017 (NIDA, 2019).

According to the NJ Department of Health (2019, September), in 2018 there were 89,629 treatment admissions for substance use or alcohol use disorder treatment amongst residents of Atlantic County, New Jersey. SAMHSA (2019) estimated 21.2 million people aged 12 or older needed substance use treatment in 2018. However, among those, only 11.1% were receiving treatment at a specialty facility in the preceding year (SAMHSA, 2019).

Early detection and intervention are key components in improving these statistics. The United States Prevention Services Task Force (USPSTF) recommended in their statement of 2015 that adults be screened for depression, alcohol, and drug use disorder, and that primary care physicians supply brief intervention or referrals to more specialized services (Siu et al., 2016).

Problem Statement

Risk of opioid dependence among adults ages 21-55 in the NJ area is indicated by rising opioid addiction rates and increasing numbers of overdose deaths (Wilson et al., 2020; NJ

Department of Health, 2019, February). This results from under-regulated, under-monitored, and overuse of opioid pain killers. One aspect of this is a lack of adequate screening for misuse.

Organizational “Gap” Analysis of Project Site

The figures are alarming. In the United States 67,367 people died from drug overdoses in 2018 and recommended measures to reduce this figure include surveillance, prevention and response in all sectors of society (Wilson et al., 2020). USPSTF recommended in their statement of 2015 that adults be screened for depression, alcohol, and drug use disorder, and that primary care physicians supply brief intervention and referrals to appropriate services (Siu et al., 2016). Substance use disorder screening using the Cut Annoyed Guilty Eye-opener Adapted to Include Drug use (CAGE-AID) screening tool is utilized at each well and follow up visit, at a Federally Qualified Health Center (FQHC), in Atlantic County, NJ. In 2018, 57% (4,782 out of 8,384) of the cases who were admitted to treat substance use disorder in New Jersey occurred in Atlantic County (NJ Department of Health, 2019, September). This comes at considerable emotional and financial cost to the patients and healthcare costs include in-patient treatment that can last from 3-5 days to 6 months with intensive out-patient and out-patient services lasting for 1-6 months (personal communication with site director). This high occurrence of treatment admissions and high emotional and financial cost due to substance use disorder raises the question as to whether a more in-depth screening tool would help reduce these costs with better early identification and thus treatment. The World Health Organization (WHO, 2008) developed the Alcohol, Smoking and Substance Involvement Screening Test (ASSIST) to help practitioners manage substance use disorder. This screening tool was investigated as a more comprehensive screening tool that might be able to identify patients at risk with greater sensitivity than the CAGE-AID screening tool that is currently used in the project site.

Review of the Literature

A search of the literature was conducted using the following databases: PubMed, Medline, PsychINFO, Academic Search Premier, and Science Direct using the search terms “primary care,” “screening,” “substance use disorder,” “mental health disorder,” “adult,” and “screening tools.” Inclusion criteria were limited to primary care screening tools, 2009- 2019, and adult. Exclusion criteria included children or adolescents, and any articles outside the United States. The studies were rated using the “Johns Hopkins Nursing Evidence Based Practice Rating Scales” (Newhouse et al., 2005).

The first database searched was PubMed using the search terms “adult primary care screening,” “substance use disorder,” “mental health disorder,” “screening tool” and “adults” limited to the years 2009-2019 which gave 57 results. After rejecting results that did not include adults and screening tools used in primary care, five results remained. MEDLINE gave 65 results using the search terms “adult primary care screening,” “screening tool,” “substance use disorder,” and “adults” limited to the years 2009-2019. Rejecting results that were not related to adult populations and screening tools in primary care settings the number was reduced to five results. PsychINFO was queried using “primary care,” and “substance use disorder,” limited to the years 2009-2019 which gave 83 results. Rejecting results that were not related to adult populations and screening tools in primary care settings the number was brought down to two results. ACADEMIC SEARCH PREMIER using “substance use disorder” and “primary care” during 2009-2019 gave 101 results. With the inclusion criteria of adults, primary care settings, and screening tools one result remained. Finally, using the UMASS library Discovery search engine with search terms “primary care,” “substance use disorder,” adults,” and “screening tool”

182 results were returned with five having relevance. Of all 18 results, six were duplicates leaving 12 articles to be used.

Synthesis of Evidence

Wheat et al. (2017) reported in a handbook on psychological assessment on substance use disorder screening and assessment in primary care settings. They set out to review the epidemiological and population-based reasoning for healthcare screenings, give examples of useful tools to use as well as giving useful information on barriers to their use in primary care settings. The authors cited the USPSTF recommendation that screening should be done in the primary care setting. They also made the point that the terms ‘substance use disorder’ and ‘substance misuse’ should replace the use of phrases that use the word ‘abuse.’ This follows the DSM-5 recommendation that encourage against using terms that are inaccurate and stigmatizing descriptors (Wheat et al., 2017, p.390). This study offers a good introduction to the subject of screening and interventions in primary care settings.

The same conclusion that primary care providers should administer substance use disorder screening was made more than a decade previously by Olfson et al. (2003, p. 386). They searched for means to improve detection of drug and alcohol use disorder, and depression in community health centers in the Northeast. Although the year of publication was out of set parameters, the study was included since it referred to a similar demographical reality as found in the chosen project site. The study findings indicate there was a need for brief screeners especially for use in low-income areas where more patients are likely to have substance use and depressive disorders (Olfson et al., 2003, p. 386-387). This conclusion underscores the usefulness of screening in a FQHC such as the project site that funds healthcare for lower income patients. The authors also voice the concern that patient denial might preclude many patients from accurately

portraying their actual use with a self-reporting screener (Olfson et al., 2003, p. 397). This was a level I study with good quality of evidence.

Three studies looked at short assessments that can be used to indicate further need for assessment and that are promising as means to save time in busy doctor's offices (Gryczynski et al., 2016; McNeeley et al., 2015; Schwartz et al., 2017). Two of these studies looked at the Tobacco, Alcohol, Prescription Medication, and Other Substance use (TAPS-1) assessment tool as a means to saving time over use of longer assessment questionnaires. TAPS-1, adapted from the Alcohol, Smoking and Substance Involvement Screening Test (ASSIST), includes two parts the second one administered if the first part screens positive. Gryczynski et al. (2016) conducted their study of the TAPS-1 tool for use in screening primary care patients. This study was a level I with high quality of evidence. The sample size was large and included primary care patients from five sites in different states. The study was designed to ascertain the validity of using the TAPS-1 as a stand-alone screening tool. Respondents were assessed using interviewing with DSM -5 SUD criteria and oral fluid biomarkers for recent drug use. The results showed high specificity and sensitivity making it a reliable tool for screening. The authors note that this tool is a useful for rapid triage in a primary care setting and that use of such a screening tool would facilitate early detection and consequently, early intervention (Gryczynski et al., 2016, p. 990).

Schwartz et al. (2017) also compared the TAPS-1 tool to ASSIST screeners in a level I study with high quality of evidence. They concluded that the TAPS-1 tool was preferable due to its brevity and focus on recent time period of 3 months while giving similar results to the ASSIST tool for both moderate and high risk users. However, they concluded that the TAPS-1 tool was unacceptably low in detecting moderate risk users who might have more than a 3 month old history of substance use. In comparison, this would be picked up by ASSIST.

McNeeley et al. (2015) looked at the Substance Use Brief Screen (SUBS) which is a short substance use disorder screening tool. This was a level I study with good quality of evidence. The authors felt that a deterrent to broad implementation of substance use disorder screening was the cumbersome nature of many tests that do not easily fit into clinical workflows. The study was conducted in an urban setting amongst people ages 18-65 as a test-retest reliability measure. They found that the SUBS test generated valid results.

Three studies looked at a self-administered audio guided computer assisted self-interview or (ACASI) ASSIST which would also save caregiver time in the office setting (Kumar et al., 2016; McNeeley et al., 2014; Spear et al., 2016). McNeeley et al. (2014) looked at the test-retest reliability of the ASSIST screening in primary care settings. This was a level I study with good quality of evidence. They found that (ACASI) ASSIST has good test-retest reliability and as such shows promise as a useful screening tool. They conclude though, that further study with comparison of (ACASI) ASSIST to reference standard measures is necessary.

Spear et al. (2016) investigated the use of (ACASI) ASSIST which promises to overcome time constraints in busy doctor's offices if they can be found to have valid results. This study included administration of the ACASI to 48 patients in New York City followed by a qualitative interview to assess the user-friendliness of the medium of administration. They concluded that the (ACASI) ASSIST was an appropriate tool to screen for substance use disorder in the primary care settings. The study being small and not randomized or controlled was level II with low quality but shows that further research is warranted.

Kumar et al. (2016) also conducted a level I study with good quality of evidence on the accuracy of (ACASI) ASSIST. They found high sensitivity and specificity for tobacco, alcohol

use (more valid in women) and cocaine use thereby concluding that this was a valid measurement tool.

Dueweke et al. (2018) looked at the notion that very short screening tools such as the PHQ-2 screener can fail to identify suicidal primary care patients. The study suggested that direct questioning of suicidal ideation is the best screening to uncover suicidal tendency in patients. This was a level I study with good quality of evidence. This study is included to consider the efficacy of short screening and direct interviewing.

The ASSIST questionnaire is a longer assessment developed by the World Health Organization (WHO, 2008). A useful study spanning four countries showed the efficacy of Brief Intervention (BI) linked to the ASSIST (Humeniuk, 2011). A randomized control study elicited results of ASSIST questionnaires that warranted intervention and these patients were entered into BI programs that resulted in reduced use of specified drugs. This was a level I high quality of evidence study that shows use of ASSIST screening and BI in the primary care settings can reduce drug use in patients.

Newcombe et al. (2018) conducted qualitative analysis of the use of BI following completion of the ASSIST questionnaire. This was a qualitative level III study with good quality of evidence. Although it was based in Australia, the original Randomized Control Study did include research conducted in the United States. Since the present study helped to enlighten the usefulness of BI based on ASSIST scores, it provides important information on the validity of screening with ASSIST and efficacy of BI that can be based in the primary care setting.

A study by Davoudi and Rawson (2010) was particular to California but examined the use of screening, brief intervention and referral to treatment (SBIRT) which is the intervention recommended by SAMHSA. This was a level I study of high quality of evidence. It shows the

usefulness of SBIRT that uses early screening and either BI or referral to specialists, depending on the severity of the problem.

Evidence Based Practice: Verification of Chosen Option

The ASSIST questionnaire was used in this project to screen adults in the primary care setting as the literature search has provided evidence showing that this tool is fairly easily administered and shows efficacy in identifying substance use disorder risk. Results were compared to those gained using the already in use CAGE-AID questions. While McNeely et al. (2014), Spear et al. (2016), and Kumar et al. (2016) recommended use of the ACASI ASSIST, this was problematic with the population involved at this project site where many patients are likely to have limited access to computers and the internet. Furthermore, direct questioning rather than computer-aided interviewing might elicit better results according to Dueweke et al. (2018). Shorter screening tools, similar to CAGE-AID, such as TAPS-and SUBS were found to be useful for time saving by Gryzinski et al. (2016), Schwartz et al. (2017), and McNeeley et al. (2015), but this project hoped to ascertain if the extra time and person-to-person involvement used with ASSIST would encourage candid responses and ensure intervention is implemented when it is needed (see Appendix A).

Theoretical Framework

Jean Watson's Theory of Human Caring (1978) guided the project. This theory centers on the assumption that spiritual and ethical considerations are key in the human caring process and from this assumption carative factors were developed by Watson that can guide nursing caring (McEwen & Will, 2014, p.183-184). For this project the most salient are faith-hope, sensitivity to self and others, developing helping-trusting caring relationships, and transpersonal teaching-learning.

By using tools to identify patients with substance use disorder as early as possible and by offering treatment options the primary care providers can exemplify caring intervention. In particular a core concept of the theory, that of transpersonal caring relationship, guided assessment and intervention. It emphasizes a moral commitment to nurture human dignity, showing love and respect for the individual, connecting as human beings while honoring mind/body/spirit in each other, using caring intention, and authentic presence. The caregiver, by creatively engaging with the patient and their individual needs, can help develop a caring/healing way forward that can be built upon to promote well-being. This is particularly important with the population that has substance use disorder as there is still considerable stigma attached to it. The more honest answers that will bring needed intervention will be easier to achieve if the caregiver has a caring, non-judgmental approach. The application of Jean Watson's Theory of Caring to this proposal implementation has been put in visual form (see Appendix B).

Goals and Objectives

The objective of this DNP project was to compare two substance use disorder screening tools to note any differences in results between a shorter screening tool (CAGE-AID) and one that was more detailed (ASSIST). Treatment options were offered to adults 21-55 years old in a primary care office in NJ who show risk from either screening tool results. This age group was chosen as the most number of admissions occurred in the age groups 25-54 (NJ Department of Health, 2019). As this is a preventive measure, young adults aged 21-24 were included as they are often experimenting with substance use. The goal was to provide treatment to those at risk for substance use disorder. Treatment was either brief intervention in the office setting or intensive outpatient or referral to in-patient treatment depending on the severity of risk. Brief intervention concentrated on increasing insight and awareness and use of cognitive behavioral

based-counseling to improve motivation for change (SAMHSA, 2020). It was expected that using ASSIST would identify more of those at risk and in need of treatment than CAGE-AID. Use of ASSIST would then achieve the goal of identifying those in need of treatment in the primary care setting, increase intervention and thereby reduce occurrence of substance use disorder, improve patient outcomes and widen community awareness. It was hoped that this would bring about a long-term effect of reducing opioid overdose rates (Table 1).

Table 1

Goals and Objectives of Quality Improvement Project

Goals	Objectives	Expected Outcomes
Screen adults ages 21-55 years of age for substance use disorder in primary care setting over period of 8 weeks using existing CAGE-AID tool and ASSIST tool.	Administer the CAGE-AID and the ASSIST to adults; compare results of the CAGE_AID with ASSIST screening tool.	Screen 40 patients (about 5 patients a week for 8 weeks); the ASSIST would identify more patients at risk for substance use disorder than the CAGE-AID does.
Identify patients at medium and high risk	Select those at medium or high risk using ASSIST score	10% of the patients would be identified at their level of risk based on the score for ASSIST
Offer appropriate interventions for those	Provide brief intervention services to those with scores 4-21 (except alcohol	80% of patients who are screened with the ASSIST and identified at risk for

identified at medium to high risk in Goal #2	11-21) and referral to specialists for those with scores 22 and above	substance use disorder would receive either brief intervention or referral to specialists
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Methods

Project Design

This is a quality improvement project that sought to improve best practices recommended by SAMHSA (2019) and the CDC (Wilson, 2019) regarding use of substance use screening in the primary care setting. The DNP student used the ASSIST screening tool as a proposed sufficiently sensitive screening tool in the primary care office for early identification and intervention of substance use disorder. Adults ages 21-55 from a primary care office at well and follow-up visits were screened on a voluntary basis. It took 5-10 minutes to administer the screening during the visit and the current screening tool, CAGE-AID was administered by the LPN as part of the usual visit intake process.

Project Site and Population

The estimated population of the project site city in 2019 was 37,743 covering a 10 square mile area and consists of a diverse population including fairly equal percentages of African Americans, Whites and Hispanics (United States Census Bureau, 2019). Smaller percentages of Asians and American Indians are also present. The percent living in poverty is quite high at 37.7% and the median income is quite low at \$27,786 (United States Census Bureau, 2019).

The project site is an adult, primary care office in NJ with two MDs and two APNs. The patient population of ages 18 years and up is 62% female, 66% non-white and 28% have a

substance use disorder diagnosis. It serves Medicaid and Medicare patients and offers sliding scale primary care services in a clinic setting. The patients from the daily patient load were screened for age and if agreeable underwent the screening while waiting for the scheduled provider to see them.

Implementation

Over a two month period, patients between the ages of 21-55 years were offered the opportunity to participate in this project at their well and follow up visits. For those who agreed to participate, ASSIST questions were asked by the DNP student and the answers recorded. The patient was given a response card that explained the response options for each question. The scores of questions 2-7 for each substance were added up. Mid-range scores (4-21 except alcohol 11-21) indicated moderate risk while high-range scores (22+) indicated high risk (World Health Organization, 2008, see Appendix C).

Patient risk was communicated to the provider by the DNP student with patient consent. Patients with moderate risk (score of 4-21 except alcohol 11-21) were treated with brief intervention and those at high risk (22+) were referred to specialist treatment programs. Quantitative data of the scores generated by this screening were recorded and compared to the results of already in use CAGE-AID screening done by the LPN at intake. In addition, qualitative comments were collected from participants. Two questions were asked and the answers recorded by the DNP student. The first question was how much the participant felt the ASSIST questionnaire was effective in determining patient risk for substance use disorder. The second question asked their opinion if better results (more honest responses) would be obtained if questions are asked in person or by using a written or digital format.

Measurement Instruments

The CAGE screener was developed in 1968 at North Carolina Memorial hospital to screen for alcohol use and has since been adapted (and re-named CAGE-AID) to include substance use (Hilliard, 2019). A study by Leonardson et al. (2005) evaluated the validity of CAGE-AID in diabetes clinic patients in the United States. Their study reported high concurrent and divergent validity as well as high internal consistency of CAGE-AID with a Cronbach's alpha score of 0.92.

The CAGE-AID questions used at the site score 1 point each for four questions asked once a respondent says they use drugs, alcohol or both. A score of two points or more would indicate need for intervention which was done by the provider or addiction specialists on site with either brief intervention or referral to specialist services (see Appendix D).

The ASSIST screening tool was designed to identify patients at risk for substance use disorder and consists of 8 questions (see Appendix C). The original version consisting of 12 items was found to be valid and reliable (World Health Organization, 2006). On average, test retest kappa scores ranged from 0.58 to 0.90 for the question stems, while the average ranges for substance class were between 0.61 for sedatives to 0.78 for opioids (World Health Organization, 2006). Some parts were found to be difficult to administer so due to this and due to parts with lower kappa scores the questionnaire was reduced from 12 to 8 items (World Health Organization, 2006).

The paper-based ASSIST questionnaire was administered during office visits by the DNP student. Since so many patients in this population smoke cigarettes and the question of use in the site's protocol is separate from the CAGE-AID questions, the query of tobacco use was eliminated and the top range of the 'moderate risk' score was lowered to 21 (tobacco use would score a maximum of 6 points for daily use). Results were recorded by the DNP student on a table

including both questionnaires with corresponding scores. The results were transferred to an Excel based table using sequential identification numbers for each patient beginning at 1001.

Data Collection Procedures

The ASSIST questionnaire was administered by the DNP student while the patient was waiting in the exam room for the provider during well visits and follow up visits. If the provider was ready to see the patient before the ASSIST was completed, the DNP student resumed the questionnaire at the conclusion of the visit. The resulting scores were collected and compared to results of the already established CAGE-AID scores taken as part of the normal intake procedure (administered by LPN). The results were compared to see if any more patients were identified by using ASSIST than by using CAGE-AID. Patient identifiers were according to sequentially assigned numbers beginning with 1001 and all connection to the patients' particular information was secured in a locked, fireproof filing cabinet in the DNP student's office and only accessed by the DNP student.

Data Analysis

The scores of both questionnaires, ASSIST and CAGE-AID, were entered into an Excel document. Scores per patient per screening tool were compared to see what percentage of patients showed risk using ASSIST and what percentage showed risk using CAGE-AID.

Results

A total of 36 patients agreed to take the two questionnaires, CAGE-AID and ASSIST. Using CAGE-AID, 1 (2.7%) out of the 36 scored at risk in need of intervention. Using ASSIST, 14 (38.8%) out of the 36 scored at risk in need of intervention; four (11%) of those were using prescribed medication. Only one (2.7%) scored at high risk, and that was picked up by both

questionnaires. Moderate and high risk scores were reported to the provider with the patient's consent (Table 2).

Table 2

Results of CAGE-AID and ASSIST Questionnaire Implementation

INSTRUMENT	CAGE-AID	ASSIST
Number and percent of patients scored at risk in need of intervention	1 (2.7%)	14 (38.8%)
Number and percent of patients scored at moderate risk	0	13 (36%)
Number and percent of patients scored at high risk	1 (2.7%)	1 (2.7%)

Note: For complete results see Appendix E

Regarding the two qualitative questions asked, four (11.1%) of the respondents declined to answer the questions or were unsure of an answer. Two (5.6%) of the respondents thought the questionnaire was not useful in identifying substance use disorder risk and 30 (83.3%) thought it was useful. Ten (27.7%) thought that a paper questionnaire would elicit more honest responses and 18 (50%) opted for person-to-person interaction. Four (11.1%) were unsure which would elicit more truthful responses. Two (5.6%) people said they thought it would all depend on the individual's willingness to admit a problem rather than the format of the questionnaire. Two (5.6%) people thought it would depend on who was asking the questions and their attitude.

Discussion

Several studies have concluded that screening and brief intervention or referral to treatment all help to reduce substance use (Davoudi & Rawson, 2010; Humeniuk, 2011; Newcombe et al., 2018;). This project sought to see if a more comprehensive substance use

disorder screener (ASSIST) would identify more people at risk than an already used shorter screening tool (CAGE-AID). The expected outcome was that ASSIST would identify more at risk and this was the case as 14 (38.8%) of patients were identified compared to 1 (2.7%) with CAGE-AID. Another expected outcome was that 10% of the patients would be identified at risk according to their ASSIST score. This figure turned out to be a conservative estimate as 38.8% of patients were actually identified at risk using ASSIST.

This project was done on a small scale with only 36 participants but even with that small number, nine (25%) people who would benefit from intervention were identified using ASSIST that were not with CAGE-AID. If the four who were on prescribed medications are included in the figure showing risk, the result would be that 13 (36%) were identified by ASSIST that were not by CAGE-AID. Schwartz et al. (2017) concluded similarly that ASSIST would show those at risk more than short screeners for those with greater than three month old substance use. Dueweke et al. (2018) similarly concluded that short screeners failed to identify those at risk when comparing screening tools for suicidal ideation.

Olfson et al. (2003, p. 397) suggested that personal interaction would elicit more truthful answers. This project did entail particular interest in the subject by the DNP student who introduced the interaction as one to find out when patients are in need of help. ASSIST asks about substance use in the patient's lifetime compared to the CAGE-AID that only asks about what is being used at the moment. This lifetime use question of ASSIST is the first question asked and is not included in the risk score but serves to introduce the subject less bluntly and to inform the practitioner of what substances may be a problem. It also shows the patient that all substance use is an important part of their medical history. This indicates not only that substance use is noteworthy but that there is help that can be supplied if there is a problem. It makes it

more apparent that substance use is a healthcare concern rather than just a legal or social one. The drawback of using the ASSIST questionnaire is the extra time involved as noted by Gryzinski et al. (2016), Schwartz et al. (2017), and McNeeley et al. (2015).

One interesting result of this project was that patients often said they currently used neither alcohol or drugs with the CAGE-AID questions yet admitted use when asked the ASSIST questions (14 of the respondents said no substance use to CAGE-AID and yes to substance use with ASSIST and of those who said yes, three ended up showing need for intervention). The greater sensitivity of ASSIST may be due to the person asking the question (LPN compared to DNP student) or it may be attributable to the more focused attention of the ASSIST questionnaire that elicited interest, suggested greater concern for the patient and consequently resulted in more candid answers. This difference between CAGE-AID and ASSIST responses to the query of current substance use was discussed with site providers and staff. They noted that patients will often not answer in the affirmative to substance use in response to the screening questions but will admit use when the provider asks. Future studies could compare the number of patients identified at risk when the provider conducts the screening compared to those identified when the intake personnel does.

Amongst the respondents of this project, qualitative questions asked revealed ten (27.7%) thought that a paper questionnaire would elicit more honest responses and 18 (50%) thought that interpersonal interaction would. These responses show a considerable agreement with Olfson et al. (2003) who thought that personal interaction with the patient was crucial in screening, but it was expected that more would think that interpersonal interaction would have greater efficacy. Two respondents (5.6%) thought that candid responses would depend on the person asking and their attitude and two respondents thought it would depend on the readiness of the patient to seek

help or admit a problem. Only two (5.6%) respondents thought using the more involved ASSIST questions was a waste of time.

Facilitators to the implementation of the project were the healthcare entity's commitment to best practices and improving patient care and satisfaction. From the beginning, it was clear that the personnel at the site appreciated this project as a way to help their patients. Everyone, including the administrative staff, social workers, nurses, and practitioners were enthusiastic, helpful and encouraging. This positive attitude certainly helped facilitate screening and it will be rewarding to share the final results with them.

Barriers to data collection were the COVID-19 pandemic, time constraints, and resistance by patients to admitting actual substance use. The pandemic was unfortunately a reason that many people were afraid to venture out even when it was for healthcare. Daily patient appointment schedules were less busy than usual and there were many instances of 'no shows.' The time constraint concerned the amount of time that is allocated for each patient. In order to keep each patient visit to normal allocation the patients were interviewed by the DNP student while they were waiting to see the provider after intake. If necessary the screening was finished at the conclusion of the provider's exam. Resistance to admission of substance use was approached by being non-judgmental and making sure the patient felt that their improved health was the goal. This was based on the Jean Watson theory of caring that calls for an open and nurturing transpersonal, caring relationship.

While the current results show that ASSIST would be a more sensitive instrument to use more study is warranted amongst a greater number of people and in varying populations. Nursing implications of the results of this study suggest that a little more investigation into a patient's substance use is worthwhile in finding patients who would benefit from intervention. A focused,

yet thorough approach showing empathy to the patient can identify those at risk earlier rather than later. Such early intervention could save a great deal of unnecessary expense and patient ill health that occurs when substance use becomes a disorder. Estimation of the cost of administering the ASSIST questionnaire is negligible compared to the cost of treating patients with substance use disorder and showed that implementing a more detailed screening is worthwhile (see Appendix F).

Timeline

The entire process including data collection and result processing took seven months. The questionnaires were given to patients over the course of eight weeks (end of January through end of March, 2021). Analysis took place in the end of March, 2021. Results were prepared for dissemination in April, 2021 and were made available to primary care offices in the area in April, 2021 (see Appendix H).

Ethical Considerations Protection of Human Subjects

The University of Massachusetts, Amherst (UMass) Internal Review Board (IRB) approval was obtained prior to initiating the DNP Project (see Appendix I). All participant health information is protected by the Health Insurance Portability and Accountability Act of 1996 (HIPAA). In addition, the DNP student and practice personnel followed the Standards of Care for primary care offices and no unusual risk was expected to affect the patients. It was important to ensure that the patient understood the security of the information collected as substance use disorder is a sensitive subject and some substance use disorder will be subject to criminal action. For candid responses, it was imperative that the patient felt assured that the information given was confidential and any scores used for the purposes of this project were recorded anonymously. The patient was educated on the project and patient rights and the patient was

made to understand that the collection of this information is primarily to serve their potential needs. Once the patient received all necessary education and any questions were answered, screening began. Participant confidentiality was assured by coding the participants using individual identification numbers. The list of participants and their identifying numbers were all kept in a fireproof locked filing cabinet in the DNP student's office, only accessible to the DNP student. All electronic files containing identifiable information were password protected and located in the DNP student's computer which was password protected.

Conclusion

The rising problem of substance use disorder in the local area requires concerted effort in many areas to combat costs to human quality of life and life itself as well as financial cost and societal health. One area that can certainly help is early detection and treatment for substance use disorder. Improvement of early intervention was investigated to see if a more detailed screening tool provided greater detection rates. It was expected that patients could be helped with more sensitive early detection or identification and consequent treatment realizing one important way to curb this rising epidemic. As the project unfolded it was clear that a significantly higher number of patients were identified at risk using ASSIST than with CAGE-AID. However, the project sample was very small and further study is warranted.

Qualitative questions asked revealed a majority of respondents felt that a person-to-person interview would be more likely to elicit honest responses. In addition, the majority of respondents thought that ASSIST and more involved questioning would help detect and treat patients with substance use risk and that this was a worthwhile goal. In conclusion, more studies are needed, but from this small study it is apparent that face-to-face questioning by a concerned professional who can offer help is preferable. This would be preferable to both short yes/no

questions administered by an intake caregiver as well as to administering screening by paper-based or computer-based questionnaires that the patient fills out. The difficulty will be fitting the questions into already tight visit time allocations.

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Appendix A
Screening Tool Comparison

Table A1*Sensitivity and Specificity*

Instrument (Reference)	Reference test	Population	Country	% Sensitivity (cut off score)	% Specificity (cut off score)
ASSIST (Humeniuk et al, 2008, p 6)	Hair analysis compared to self-reported use in last 3 months	1047 participants from drug treatment and primary care settings	Australia, Brazil, India, Israel, Thailand, UK, USA, Zimbabwe	54-97	50-96
CAGE-AID (Brown & Rounds, 1995)	DSM-III-R diagnosis for lifetime drug abuse/dependence	124 patients from a primary care practice	USA	79(1) 70(2)	77(1) 85(2)
TAPS-1 for total opioids (Schwartz et al., 2017)	Compared to ASSIST	2000 adult primary care patients from four primary care sites in Eastern US states	USA	High risk 99 Moderate 48	59 99

SUBS (McNeeley et al., 2015)	Oral fluid testing compared to self-reported use	586 patients from an adult primary care clinic of a large NYC municipal hospital	USA	77	92
ASSIST- (ACASI) (Kumer et al., 2016)		399 adult patients from NYC primary care clinic	USA		

Mdege & Lang, 2011, p.1116.

Table A2

Screening Tool Description

Instrument (Reference)	Number of questions	Self- Report	Interview	Timeline	Substance	Frequency
ASSIST (Humenuk et al, 2008, p 6)	8		Yes	Ever and last 3 months	Alcohol, Tobacco, Cannabis, Cocaine, Amphetamines, Inhalants, Sedatives, Hallucinogens, Opioids, Other	Frequency Scale - Daily, Weekly, Monthly, Less than monthly, Never

CAGE-AID (Brown & Rounds, 1995)	4	Yes	Yes	Last 3 months	Alcohol Drugs	
TAPS-1 for total opioids (Schwartz et al., 2017)		Yes	Yes	Past year	Tobacco, Alcohol, Prescription Medication And Other Substance Use	Frequency Scale - Daily, Weekly, Monthly, Less than monthly, Never
SUBS (McNeeley et al., 2015)	4	Yes	Yes	Past year	Tobacco, Alcohol, Illegal Drugs, Prescription Drugs used recreationally	Never, 1 or 2 days/3 or more days in last year
ASSIST- (ACASI) (Kumer et al., 2016)	8	Yes		Ever and last 3 months	Alcohol, Tobacco, Cannabis, Cocaine, Amphetamines, Inhalants, Sedatives,	Frequency Scale - Daily, Weekly, Monthly, Less than

					Hallucinogens, Opioids, Other	monthly, Never
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ASSIST: Alcohol, Smoking, and Substance Involvement Screening Test

CAGE-AID: Cut Down, Annoyed, Guilty, Eye-opener- Adapted to Include Drugs

TAPS-1: Tobacco, Alcohol, Prescription Medication, and Other Substance use

SUBS: Substance Use Brief Screen

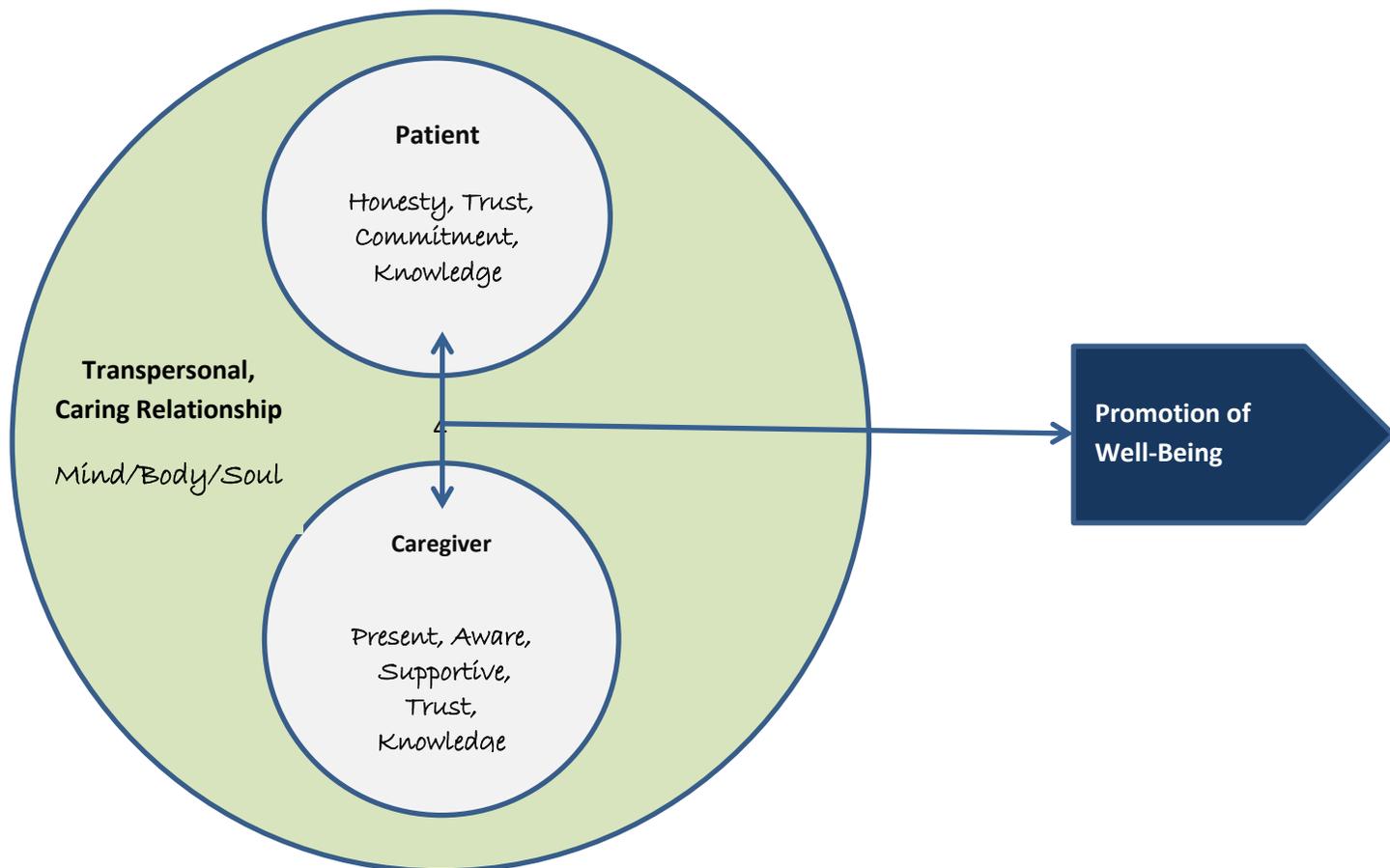
ASSIST (ACASI): Alcohol, Smoking, and Substance Involvement Screening Test (Audio-guided Computer Aided Self Interview)

Appendix B

Theoretical Framework

Figure B1

Jean Watson's Theory of Human Caring Related to Substance Use Disorder Screening and Intervention



Appendix C

ASSIST Screening Tool

A. WHO - ASSIST V3.0

INTERVIEWER ID	<input style="width: 95%;" type="text"/>	COUNTRY	<input style="width: 15px; height: 15px;" type="text"/>	<input style="width: 15px; height: 15px;" type="text"/>	CLINIC	<input style="width: 95%;" type="text"/>
PATIENT ID	<input style="width: 95%;" type="text"/>	DATE				

INTRODUCTION *(Please read to patient)*

Thank you for agreeing to take part in this brief interview about alcohol, tobacco products and other drugs. I am going to ask you some questions about your experience of using these substances across your lifetime and in the past three months. These substances can be smoked, swallowed, snorted, inhaled, injected or taken in the form of pills (show drug card).

Some of the substances listed may be prescribed by a doctor (like amphetamines, sedatives, pain medications). For this interview, we will not record medications that are used as prescribed by your doctor. However, if you have taken such medications for reasons other than prescription, or taken them more frequently or at higher doses than prescribed, please let me know. While we are also interested in knowing about your use of various illicit drugs, please be assured that information on such use will be treated as strictly confidential.

NOTE: BEFORE ASKING QUESTIONS, GIVE ASSIST RESPONSE CARD TO PATIENT

Question 1

(if completing follow-up please cross check the patient's answers with the answers given for Q1 at baseline. Any differences on this question should be queried)

In your life, which of the following substances have you ever used? <i>(NON-MEDICAL USE ONLY)</i>	No	Yes
a. Tobacco products (cigarettes, chewing tobacco, cigars, etc.)	0	3
b. Alcoholic beverages (beer, wine, spirits, etc.)	0	3
c. Cannabis (marijuana, pot, grass, hash, etc.)	0	3
d. Cocaine (coke, crack, etc.)	0	3
e. Amphetamine type stimulants (speed, diet pills, ecstasy, etc.)	0	3
f. Inhalants (nitrous, glue, petrol, paint thinner, etc.)	0	3
g. Sedatives or Sleeping Pills (Valium, Serepax, Rohypnol, etc.)	0	3
h. Hallucinogens (LSD, acid, mushrooms, PCP, Special K, etc.)	0	3
i. Opioids (heroin, morphine, methadone, codeine, etc.)	0	3
j. Other - specify:	0	3

If "No" to all items, stop interview.

"Not even when you were in school?"

If "Yes" to any of these items, ask Question 2 for each substance ever used.

Question 2

In the <u>past three months</u> , how often have you used the substances you mentioned (FIRST DRUG, SECOND DRUG, ETC)?	Never	Once or Twice	Monthly	Weekly	Daily or Almost Daily
a. Tobacco products (cigarettes, chewing tobacco, cigars, etc.)	0	2	3	4	6
b. Alcoholic beverages (beer, wine, spirits, etc.)	0	2	3	4	6
c. Cannabis (marijuana, pot, grass, hash, etc.)	0	2	3	4	6
d. Cocaine (coke, crack, etc.)	0	2	3	4	6
e. Amphetamine type stimulants (speed, diet pills, ecstasy, etc.)	0	2	3	4	6
f. Inhalants (nitrous, glue, petrol, paint thinner, etc.)	0	2	3	4	6
g. Sedatives or Sleeping Pills (Valium, Serepax, Rohypnol, etc.)	0	2	3	4	6
h. Hallucinogens (LSD, acid, mushrooms, PCP, Special K, etc.)	0	2	3	4	6
i. Opioids (heroin, morphine, methadone, codeine, etc.)	0	2	3	4	6
j. Other - specify:	0	2	3	4	6

If "Never" to all items in Question 2, skip to Question 6.

If any substances in Question 2 were used in the previous three months, continue with Questions 3, 4 & 5 for each substance used.

Question 3

During the <u>past three months</u> , how often have you had a strong desire or urge to use (FIRST DRUG, SECOND DRUG, ETC)?	Never	Once or Twice	Monthly	Weekly	Daily or Almost Daily
a. Tobacco products (cigarettes, chewing tobacco, cigars, etc.)	0	3	4	5	6
b. Alcoholic beverages (beer, wine, spirits, etc.)	0	3	4	5	6
c. Cannabis (marijuana, pot, grass, hash, etc.)	0	3	4	5	6
d. Cocaine (coke, crack, etc.)	0	3	4	5	6
e. Amphetamine type stimulants (speed, diet pills, ecstasy, etc.)	0	3	4	5	6
f. Inhalants (nitrous, glue, petrol, paint thinner, etc.)	0	3	4	5	6
g. Sedatives or Sleeping Pills (Valium, Serepax, Rohypnol, etc.)	0	3	4	5	6
h. Hallucinogens (LSD, acid, mushrooms, PCP, Special K, etc.)	0	3	4	5	6
i. Opioids (heroin, morphine, methadone, codeine, etc.)	0	3	4	5	6
j. Other - specify:	0	3	4	5	6

Question 4

During the **past three months**, how often has your use of (FIRST DRUG, SECOND DRUG, ETC) led to health, social, legal or financial problems?

	Never	Once or Twice	Monthly	Weekly	Daily or Almost Daily
a. Tobacco products (cigarettes, chewing tobacco, cigars, etc.)	0	4	5	6	7
b. Alcoholic beverages (beer, wine, spirits, etc.)	0	4	5	6	7
c. Cannabis (marijuana, pot, grass, hash, etc.)	0	4	5	6	7
d. Cocaine (coke, crack, etc.)	0	4	5	6	7
e. Amphetamine type stimulants (speed, diet pills, ecstasy, etc.)	0	4	5	6	7
f. Inhalants (nitrous, glue, petrol, paint thinner, etc.)	0	4	5	6	7
g. Sedatives or Sleeping Pills (Valium, Serepax, Rohypnol, etc.)	0	4	5	6	7
h. Hallucinogens (LSD, acid, mushrooms, PCP, Special K, etc.)	0	4	5	6	7
i. Opioids (heroin, morphine, methadone, codeine, etc.)	0	4	5	6	7
j. Other - specify:	0	4	5	6	7

Question 5

During the **past three months**, how often have you failed to do what was normally expected of you because of your use of (FIRST DRUG, SECOND DRUG, ETC)?

	Never	Once or Twice	Monthly	Weekly	Daily or Almost Daily
a. Tobacco products					
b. Alcoholic beverages (beer, wine, spirits, etc.)	0	5	6	7	8
c. Cannabis (marijuana, pot, grass, hash, etc.)	0	5	6	7	8
d. Cocaine (coke, crack, etc.)	0	5	6	7	8
e. Amphetamine type stimulants (speed, diet pills, ecstasy, etc.)	0	5	6	7	8
f. Inhalants (nitrous, glue, petrol, paint thinner, etc.)	0	5	6	7	8
g. Sedatives or Sleeping Pills (Valium, Serepax, Rohypnol, etc.)	0	5	6	7	8
h. Hallucinogens (LSD, acid, mushrooms, PCP, Special K, etc.)	0	5	6	7	8
i. Opioids (heroin, morphine, methadone, codeine, etc.)	0	5	6	7	8
j. Other - specify:	0	5	6	7	8

Ask Questions 6 & 7 for all substances ever used (i.e. those endorsed in Question 1)

Question 6

Has a friend or relative or anyone else ever expressed concern about your use of (FIRST DRUG, SECOND DRUG, ETC.)?	No, Never	Yes, in the past 3 months	Yes, but not in the past 3 months
a. Tobacco products (cigarettes, chewing tobacco, cigars, etc.)	0	6	3
b. Alcoholic beverages (beer, wine, spirits, etc.)	0	6	3
c. Cannabis (marijuana, pot, grass, hash, etc.)	0	6	3
d. Cocaine (coke, crack, etc.)	0	6	3
e. Amphetamine type stimulants (speed, diet pills, ecstasy, etc.)	0	6	3
f. Inhalants (nitrous, glue, petrol, paint thinner, etc.)	0	6	3
g. Sedatives or Sleeping Pills (Valium, Serepax, Rohypnol, etc.)	0	6	3
h. Hallucinogens (LSD, acid, mushrooms, PCP, Special K, etc.)	0	6	3
i. Opioids (heroin, morphine, methadone, codeine, etc.)	0	6	3
j. Other - specify:	0	6	3

Question 7

Have you ever tried and failed to control, cut down or stop using (FIRST DRUG, SECOND DRUG, ETC.)?	No, Never	Yes, in the past 3 months	Yes, but not in the past 3 months
a. Tobacco products (cigarettes, chewing tobacco, cigars, etc.)	0	6	3
b. Alcoholic beverages (beer, wine, spirits, etc.)	0	6	3
c. Cannabis (marijuana, pot, grass, hash, etc.)	0	6	3
d. Cocaine (coke, crack, etc.)	0	6	3
e. Amphetamine type stimulants (speed, diet pills, ecstasy, etc.)	0	6	3
f. Inhalants (nitrous, glue, petrol, paint thinner, etc.)	0	6	3
g. Sedatives or Sleeping Pills (Valium, Serepax, Rohypnol, etc.)	0	6	3
h. Hallucinogens (LSD, acid, mushrooms, PCP, Special K, etc.)	0	6	3
i. Opioids (heroin, morphine, methadone, codeine, etc.)	0	6	3
j. Other - specify:	0	6	3

Question 8

No, Never
 Yes, in the past 3 months
 Yes, but not in the past 3 months

Have you ever used any drug by injection?
 (NON-MEDICAL USE ONLY)

0 2 1

IMPORTANT NOTE:

Patients who have injected drugs in the last 3 months should be asked about their pattern of injecting during this period, to determine their risk levels and the best course of intervention.

PATTERN OF INJECTING

INTERVENTION GUIDELINES

Once weekly or less or
 Fewer than 3 days in a row

Brief Intervention including "risks associated with injecting" card

More than once per week or
 3 or more days in a row

Further assessment and more intensive treatment*

HOW TO CALCULATE A SPECIFIC SUBSTANCE INVOLVEMENT SCORE.

For each substance (labelled a. to j.) add up the scores received for questions 2 through 7 inclusive. Do not include the results from either Q1 or Q8 in this score. For example, a score for cannabis would be calculated as: Q2c + Q3c + Q4c + Q5c + Q6c + Q7c

Note that Q5 for tobacco is not coded, and is calculated as: Q2a + Q3a + Q4a + Q6a + Q7a

THE TYPE OF INTERVENTION IS DETERMINED BY THE PATIENT'S SPECIFIC SUBSTANCE INVOLVEMENT SCORE

Record specific substance score	no intervention	receive brief intervention	more intensive treatment *
a. tobacco	0 - 3	4 - 26	27+
b. alcohol	0 - 10	11 - 26	27+
c. cannabis	0 - 3	4 - 26	27+
d. cocaine	0 - 3	4 - 26	27+
e. amphetamine	0 - 3	4 - 26	27+
f. inhalants	0 - 3	4 - 26	27+
g. sedatives	0 - 3	4 - 26	27+
h. hallucinogens	0 - 3	4 - 26	27+
i. opioids	0 - 3	4 - 26	27+
j. other drugs	0 - 3	4 - 26	27+

NOTE: *FURTHER ASSESSMENT AND MORE INTENSIVE TREATMENT may be provided by the health professional(s) within your primary care setting, or, by a specialist drug and alcohol treatment service when available.

B. WHO ASSIST V3.0 RESPONSE CARD FOR PATIENTS

Response Card - substances

a. Tobacco products (cigarettes, chewing tobacco, cigars, etc.)

b. Alcoholic beverages (beer, wine, spirits, etc.)

c. Cannabis (marijuana, pot, grass, hash, etc.)

d. Cocaine (coke, crack, etc.)

e. Amphetamine type stimulants (speed, diet pills, ecstasy, etc.)

f. Inhalants (nitrous, glue, petrol, paint thinner, etc.)

g. Sedatives or Sleeping Pills (Valium, Serepax, Rohypnol, etc.)

h. Hallucinogens (LSD, acid, mushrooms, PCP, Special K, etc.)

i. Opioids (heroin, morphine, methadone, codeine, etc.)

j. Other - specify:

Response Card (ASSIST Questions 2 – 5)

Never: not used in the last 3 months

Once or twice: 1 to 2 times in the last 3 months.

Monthly: 1 to 3 times in one month.

Weekly: 1 to 4 times per week.

Daily or almost daily: 5 to 7 days per week.

Response Card (ASSIST Questions 6 to 8)

No, Never

Yes, but not in the past 3 months

Yes, in the past 3 months

C. ALCOHOL, SMOKING AND SUBSTANCE INVOLVEMENT SCREENING TEST (WHO ASSIST V3.0) FEEDBACK REPORT CARD FOR PATIENTS

Name _____ Test Date _____

Specific Substance Involvement Scores

Substance	Score	Risk Level
a. Tobacco products	0-3	Low
	4-26	Moderate
	27+	High
b. Alcoholic Beverages	0-10	Low
	11-26	Moderate
	27+	High
c. Cannabis	0-3	Low
	4-26	Moderate
	27+	High
d. Cocaine	0-3	Low
	4-26	Moderate
	27+	High
e. Amphetamine type stimulants	0-3	Low
	4-26	Moderate
	27+	High
f. Inhalants	0-3	Low
	4-26	Moderate
	27+	High
g. Sedatives or Sleeping Pills	0-3	Low
	4-26	Moderate
	27+	High
h. Hallucinogens	0-3	Low
	4-26	Moderate
	27+	High
i. Opioids	0-3	Low
	4-26	Moderate
	27+	High
j. Other - specify	0-3	Low
	4-26	Moderate
	27+	High

What do your scores mean?

Low:	You are at low risk of health and other problems from your current pattern of use.
Moderate:	You are at risk of health and other problems from your current pattern of substance use.
High:	You are at high risk of experiencing severe problems (health, social, financial, legal, relationship) as a result of your current pattern of use and are likely to be dependent

Are you concerned about your substance use?

D. RISKS OF INJECTING DRUGS – INFORMATION FOR PATIENTS

Using substances by injection increases the risk of harm from substance use.

This harm can come from:

- The substance**

If you inject any drug you are more likely to become dependent.

If you inject amphetamines or cocaine you are more likely to experience psychosis.

If you inject heroin or other sedatives you are more likely to overdose.

- The injecting behaviour**

If you inject you may damage your skin and veins and get infections.

You may cause scars, bruises, swelling, abscesses and ulcers.

Your veins might collapse.

If you inject into the neck you can cause a stroke.

- Sharing of injecting equipment**

If you share injecting equipment (needles & syringes, spoons, filters, etc.) you are more likely to spread blood borne virus infections like Hepatitis B, Hepatitis C and HIV.

It is safer not to inject

If you do inject:

always use clean equipment (e.g., needles & syringes, spoons, filters, etc.)

always use a new needle and syringe

don't share equipment with other people

clean the preparation area

clean your hands

clean the injecting site

use a different injecting site each time

inject slowly

put your used needle and syringe in a hard container and dispose of it safely

If you use stimulant drugs like amphetamines or cocaine the following tips will help you reduce your risk of psychosis.

avoid injecting and smoking

avoid using on a daily basis

If you use depressant drugs like heroin the following tips will help you reduce your risk of overdose.

avoid using other drugs, especially sedatives or alcohol, on the same day

use a small amount and always have a trial "taste" of a new batch

have someone with you when you are using

avoid injecting in places where no-one can get to you if you do overdose

know the telephone numbers of the ambulance service

E. TRANSLATION AND ADAPTATION TO LOCAL LANGUAGES AND CULTURE: A RESOURCE FOR CLINICIANS AND RESEARCHERS

The ASSIST instrument, instructions, drug cards, response scales and resource manuals may need to be translated into local languages for use in particular countries or regions. Translation from English should be as direct as possible to maintain the integrity of the tools and documents. However, in some cultural settings and linguistic groups, aspects of the ASSIST and its companion documents may not be able to be translated literally and there may be socio-cultural factors that will need to be taken into account in addition to semantic meaning. In particular, substance names may require adaptation to conform to local conditions, and it is also worth noting that the definition of a standard drink may vary from country to country.

Translation should be undertaken by a bi-lingual translator, preferably a health professional with experience in interviewing. For the ASSIST instrument itself, translations should be reviewed by a bi-lingual expert panel to ensure that the instrument is not ambiguous. Back translation into English should then be carried out by another independent translator whose main language is English to ensure that no meaning has been lost in the translation. This strict translation procedure is critical for the ASSIST instrument to ensure that comparable information is obtained wherever the ASSIST is used across the world.

Translation of this manual and companion documents may also be undertaken if required. These do not need to undergo the full procedure described above, but should include an expert bi-lingual panel.

Before attempting to translate the ASSIST and related documents into other languages, interested individuals should consult with the WHO about the procedures to be followed and the availability of other translations. Write to the Department of Mental Health and Substance Dependence, World Health Organisation, 1211 Geneva 27, Switzerland.

Appendix D

CAGE-AID Screening Tool

The CAGE-AID questions for the site are as follows:

- Do you use alcohol or drugs or both? Yes or No

If yes, and the patient responded in the affirmative to the question

- Have people annoyed you by criticized your drinking or drug use? Yes or No

Yes would score 1 point

- Have you ever felt you should cut down? Yes or No

Yes would score 1 point

- Have you ever had a drink or used drugs first thing in the morning to steady your nerves or get rid of a hangover? Yes or No

Yes would score 1 point

- Have you felt bad or guilty about your drinking or drug use? Yes or No

Yes would score 1 point.

A score of 2 or more would indicate need for intervention.

Appendix E

Table F1

Results of CAGE-AID and ASSIST Questionnaire Implementation

CAGE-AID						ASSIST							
Subs- stance	Criti cize	Cut Down	AM use	Guilt	Score/ Interv	Q1 Ever	Q2 3 mth use 2-6 pts	Q3 3 mth urge 3-6 pts	Q4 Problems 4-7 pts	Q5 Complete 5-8 pts	Q6 Concern 3/6 pts	Q7 Quit 3/6 pts	Score/ Interv
1001													
A,D,B none					0/ N	A Ca Co Am I S H O	A-3, Ca-4, S-6						Ca-4, S-6/ Y Rx
1002													
A,D,B None					0/ N	A Ca Co Am I S H O							0/ N
1003													
A,D,B none					0/ N	A Ca Co Am I S H O	Ca-6, O-6						Ca-6, O-6/ Y
1004													
A,D,B none					0/ N	A Ca Co Am I S H O	Ca-6						Ca-6/ Y

1005													
A,D,B					0/	A Ca Co Am	Ca-4						Ca-4/
none					N	I S H O							Y
1006													
A,D,B					0/	A Ca Co Am	A-3,I-3						A-3,
none					N	I S H O							I-3/ N
1007													
A,D,B					0/	A Ca Co Am	A-3						A-3/
none					N	I S H O							N
1008													
A,D,B					0/	A Ca Co Am	A-3, Ca-3						A-3,
none					N	I S H O							Ca-3/ N
1009													
A,D,B					0/	A Ca Co Am	A-3						A-3/
none					N	I S H O							N
CAGE-AID						ASSIST							
Subs- stance	Criti cize	Cut Down	AM use	Guilt	Score/ Interv	Q1 Ever	Q2 3 mth use 2-6 pts	Q3 3 mth urge 3-6 pts	Q4 Problems 4-7 pts	Q5 Complete 5-8 pts	Q6 Concern 3/6 pts	Q7 Quit 3/6 pts	Score/ Interv

1010													
A,D,B none					0/ N	A Ca Co Am I S H O	A-6			A-8		A-6	A-20/ Y
1011													
A,D,B none					0/ N	A Ca Co Am I S H O	A-3						A-3/ N
1012													
A,D,B none					0/ N	A Ca Co Am I S H O	A-2						A-2/ N
1013													
A,D,B none					0/ N	A Ca Co Am I S H O	A-4		A-6		A-3	A-3	A-16/ Y
1014													
A,D,B none					0/ N	A Ca Co Am I S H O	O-6						O-6/ Y
1015													
A,D,B none					0/ N	A Ca Co Am I S H O	A-2						A-2/ N

1016													
A,D,B none					0/ N	A Ca Co Am I S H O							0/ N
1017													
A,D,B none					0/ N	A Ca Co Am I S H O	O-6						O-6/ Y Rx
1018													
A,D,B none	1				1/ N	A Ca Co Am I S H O	A-6, O-6				A-6, O-6		A-12, O-12/ Y
1019													
A,D,B none					0/ N	A Ca Co Am I S H O	A-4						A-4/ N
1020													
A,D,B none					0/ N	A Ca Co Am I S H O	A-4						A-4/ N
CAGE-AID						ASSIST							
Subs- stance	Criti cize	Cut Down	AM use	Guilt	Score/ Interv	Q1 Ever	Q2 3 mth use	Q3 3 mth urge	Q4 Problems	Q5 Complete	Q6 Concern	Q7 Quit	Score/ Interv

							2-6 pts	3-6 pts	4-7 pts	5-8 pts	3/6 pts	3/6 pts	
1021													
A,D,B					0/ N	A Ca Co Am I S H O							0/ N
1022													
A,D,B					0 /N	A Ca Co Am I S H O							0/ N
1023													
A,D,B					0/ N	A Ca Co Am I S H O							0/ N
1024													
A,D,B					0/ N	A Ca Co Am I S H O	O-4						O-4/ Y Rx
1025													
A,D,B					0/ N	A Ca Co Am I S H O	A-4						A-4/ N
1026													

A,D,B none					0/ N	A Ca Co Am I S H O	A-3						A-3/ N
1027													
A,D,B none					0/ N	A Ca Co Am I S H O							0/ N
1028													
A,D,B none					0/ N	A Ca Co Am I S H O	A-4						A-4/ N
1029													
A,D,B none					0/ N	A Ca Co Am I S H O							0/ N
1030													
A,D,B none					0/ N	A Ca Co Am I S H O	Am-3 O-3	O-4			Am-6, O-6		O-13/ Y

CAGE-AID						ASSIST							
Subs- stance	Criti cize	Cut Down	AM use	Guilt	Score/ Interv	Q1 Ever	Q2 3 mth use	Q3 3 mth urge	Q4 Problems	Q5 Complete	Q6 Concern	Q7 Quit	Score/ Interv

--	--	--	--	--	--	--	--	--	--	--	--	--	--

Note: A=alcohol, D=drugs, B=both Ca=cannabis, Co=cocaine, Am=amphetamines, I=inhalants, S=sedatives, H=hallucinogens,
O=opioids, BI=brief intervention, IOP=intensive outpatient program, yellow highlight signifies acknowledges use

Appendix F

Cost-Benefit Analysis/Budget

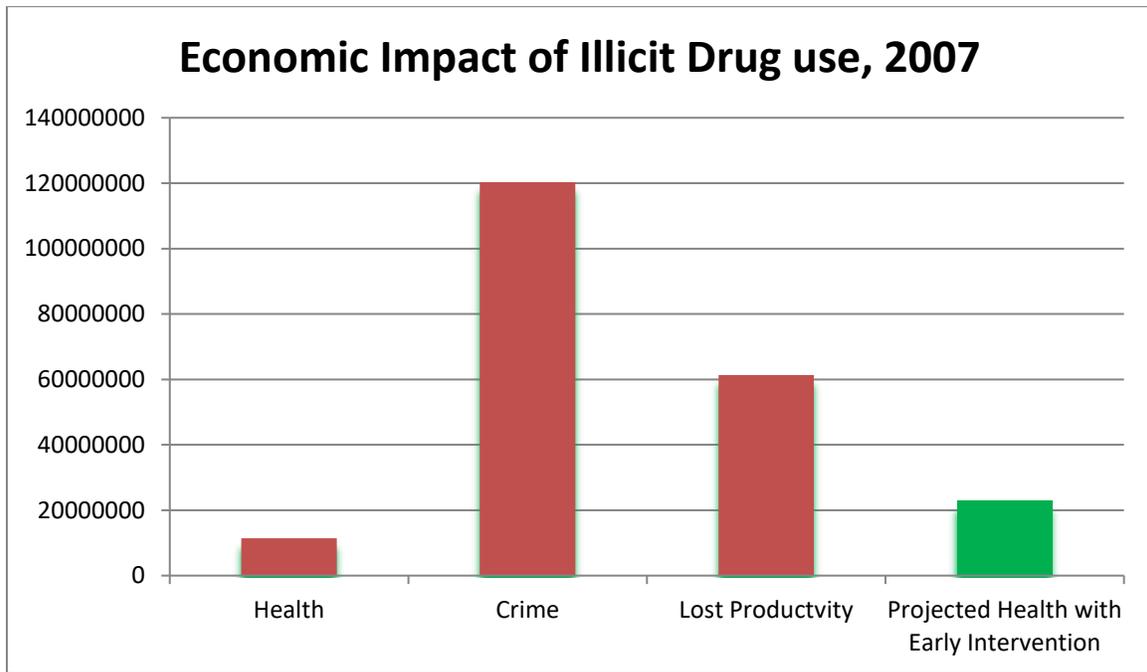
The only financial cost will be the paper needed to provide each patient with a response guide (See appendix C, Part B) or one page per patient and the paper needed to provide a report card (See Appendix C, Part C) or four pages per patient. For 100 patients this would be 500 pages at a cost of less than \$5. The time involved for screening administration would be about 5-10 minutes per patient. If 100 patients are given the test, this will use an expected maximum of 17 hours of provider time for administration. This could be translated to a cost of about \$1000 and a total of \$1005 including paper. The savings in cost related to substance use disorder far outweigh this up front cost. As a patient becomes more entrenched with addiction, the primary care provider will have higher costs related to drug-seeking appointments and intoxication related injury care. The healthcare system in general will experience considerable cost related to rehabilitation specialist services and the society will also suffer higher costs related to unemployment and criminal activity. According to the National Drug Intelligence Center of the Department of Justice (2011) \$120,304,004 was spent on lost productivity and \$61,376,694 was spent on crime related to substance abuse. An additional \$11,416,232 was used for health related expenses such as specialized treatment and emergency care. Even if the health related expenses were to be doubled as a result of more early intervention related health care services, this cost is still far out-shadowed by the cost of lost productivity and crime related to substance use disorder that is left untreated (see appendix G). The savings in terms of cost and emotional impact are considerable if substance use disorder is caught in the early stages.

Appendix G

Economic Impact of Illicit Drug Use

Table G1

Economic Impact of Illicit Drug Use



Note: Health, Crime, Lost Productivity figures are from National Drug Intelligence Center (2011) and Health with Early Intervention is a projected figure by this author.

Appendix H

Timeline

Table H1

Timeline

Task	December	January	February	March	April
Provider Education	X				
Recruitment of eligible participants		X	X	X	
Intervention		X	X	X	
Evaluation				X	
Analysis of outcomes				X	
Results presented to local providers					X

Appendix I
IRB Approval Letter

UMassAmherst

Human Research Protection Office

Mass Venture Center
100 Venture Way, Suite 116
Hadley, MA 01035
Telephone: 413-545-3428

Memorandum – Not Human Subjects Research Determination

Date: October 6, 2020

To: Shari Shaltout, College of Nursing

Project Title: *Substance Use Disorder: Primary Care Screening*

HRPO Determination Number: 20-216

The Human Research Protection Office (HRPO) has evaluated the above named project and has made the following determination based on the information provided to our office:

- The proposed project does not involve research that obtains information about living individuals [45 CFR 46.102(f)].
- The proposed project does not involve intervention or interaction with individuals OR does not use identifiable private information [45 CFR 46.102(f)(1), (2)].
- The proposed project does not meet the definition of human subject research under federal regulations [45 CFR 46.102(d)].

Submission of an Application to UMass Amherst IRB is not required.

Note: This determination applies only to the activities described in the submission. If there are changes to the activities described in this submission, please submit a new determination form to the HRPO prior to initiating any changes. *Researchers should NOT include contact information for the UMass Amherst IRB on any project materials.*

A project determined as “Not Human Subjects Research,” must still be conducted ethically. The UMass Amherst HRPO strongly expects project personnel to:

- treat participants with respect at all times
- ensure project participation is voluntary and confidentiality is maintained (when applicable)
- minimize any risks associated with participation in the project
- conduct the project in compliance with all applicable federal, state, and local regulations as well as UMass Amherst Policies and procedures which may include obtaining approval of your activities from other institutions or entities.

Please do not hesitate to call us at 413-545-3428 or email humansubjects@ora.umass.edu if you have any questions.

Iris L. Jenkins

Iris L. Jenkins, Assistant Director
Human Research Protection Office