Low-Burden Universal Substance Use Screening in a Primary Care Clinic to Lower Implementation Barriers

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Abstract

Universal substance use screening in primary care can proactively identify patients for intervention, though implementation is challenging. This project developed a strategy for universal low time- and labor-cost screening, brief intervention, and referral for treatment (SBIRT) in an HIV primary care clinic at an academic medical center in the Southeastern USA. Screening was implemented using a tablet computer that calculated results in real time and suggested motivational language for provider response. A brief intervention (BNI) was conducted by a trained professional as needed, preventing the need for all clinic providers to be competent in motivational interviewing (MI). More than 1868 patients were screened in 12 months, with an MI intervention conducted for 101 patients with higher risk use. Forty-four patients were referred for in-clinic treatment, compared to nine in the previous year. Computer-based, self-administered screening with real-time linkage to a BNI can allow recommended screening with low provider burden.

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Introduction

Substance use is a risk factor for multiple negative health outcomes, including transmission of STDs and HIV.[1–5] A unique aspect of primary care is the understanding of the complex interplay between physical and behavioral health. Substance use and overuse are important components of behavioral health that can have a powerful impact on physical health.

Typical primary care and chronic care management allows for regular follow-up of people living with chronic illness, and thus, it provides an excellent platform for screening for substance use over time.[6–13] The federal Substance Abuse/Mental Health Services Administration (SAMHSA) has long endorsed the evidence-based practice of Screening, Brief Intervention, and Referral for Treatment (SBIRT) for identifying substance overuse, delivering a brief clinic-based motivational intervention, and referral for more intensive substance abuse treatment for those who require it and are ready to engage in treatment,[6,7,11,14–18] and studies have affirmed its effectiveness, though not universally. More study is needed to determine the best ways to provide the components of SBIRT in different medical settings, the best ways to train staff on SBIRT skills, and the types of supports needed for patients to maintain their gains, as well as a focus specifically on SBIRT for illicit drug use as compared to alcohol overuse. [19,20]

SBIRT screening is recommended universally in primary care, but the implementation is challenging. There are severe constraints in provider time, for example, as well as limited availability of reliable and valid screening strategies, and clinics can be reluctant to identify substance use problems if they lack adequate treatment or referral options.[14,16–18] In addition, there are constraints on staff time for training, given the need to maximize clinical care to support clinic operations as well as meet patient need, and limits on funds available for staff time and equipment/supplies to support a new practice, especially if it is not a service that is expected to generate additional funds into the practice.

On the other hand, there is value in routine universal prospective screening, as it is likely to identify problem areas more readily than ad hoc attention when the provider perceives a problem. In addition, clients are more likely to use treatment, when needed, when referred by their primary care provider, and especially if it is embedded within their primary care clinic.[21]

In substance use screening, as with all screening that involves sensitive information, there is a tendency for individuals to under-report non-socially desirable activities. This is true for multiple important health behaviors, such as medication adherence, sexual behavior, and substance use, to name a few.[22–25] In addition, reliable and valid assessment tools are more likely to generate accurate information, rather than what may be intuitive single questions, such as "How much are you drinking?" There are multiple brief screening questionnaires that can provide valid and reliable information, especially if the individual being screened is not required to respond face-to-face to someone that the individual knows and values.

While universal substance use screening is recommended as a primary care prevention intervention, there are implementation barriers that limit its use.[14,26] The purpose of this paper is to present one potential strategy for primary care implementation that uses computer-based, self-administered screening with validated screening questions and automated scoring, low primary medical provider burden, linkage to the evidence-based practices of SBIRT and motivational interviewing (MI), and efficient use of patient wait time in clinic.

Methods

Setting

The clinic where this project was implemented was the public Infectious Diseases (ID) clinic at an academic medical center in a southern state where people living with HIV disease (PLWH) received

medical care. The care was provided primarily by nurse practitioners and ID-trained physicians. The clinic had, at the time of the project, approximately 2000 active PLWH and approximately 50 active patients undergoing treatment for hepatitis C only. In the HIV chronic care clinic, approximately 63% identified as male, 2% as transgender, 85% as African American, and approximately 80% were living in poverty, as defined by a self-report of living below the federal poverty level. The clinic received federal Ryan White Care Act funding, which required that primary care be provided for all uninsured or underinsured PLWH and allowed it to provide case management and transportation, and a focus on quality of care issues, such as retention, adherence, HIV viral load suppression, and psychosocial barriers to care. Substance use was known as a barrier to quality care, and addressing this was a clinical priority.

Although the original funding of this substance abuse screening/treatment program described in this paper was through the Department of Health and Human Services Substance Abuse and Mental Health Services Administration (SAMHSA), with the clinic's classification as a Ryan White clinic, this clinic was able to generate funds from a federal pharmacy discount program, which allowed the management to consider sustainment of the substance use screening/treatment program, should it prove to be successful in the grant-funded period.

Patients were typically seen for routine chronic HIV care every 3–6 months, depending on clinical stability. They were seen primarily by seven nurse practitioners, who acted in collaboration with a physician medical director.

Prior to the start of this project, which was called "Helping to Advance in New Directions" (Helping HAND), substance use screening was routinely completed by nursing staff on rooming, using standard Yes–No questions about alcohol and drug use, and a follow-up question about the number of drinks per week and the type and frequency of drug use, with no specification of the size of the drinks. Positive screens were infrequently addressed by the primary medical provider and there were no clinic-based guidelines for responding to positive screening results. Once identified, there were no in-house mechanisms to address substance use, beyond one Mental Health Coordinator who could refer externally for treatment if requested by the medical provider.

Intervention

In order to reliably identify individuals who could benefit from treatment, Helping HAND instituted universal annual screening with validated items, followed by a motivational response from the medical provider to reinforce non-use or low risk use, or to help motivate those with excessive use to focus on their substance use in order to benefit their overall healthcare. Brief interventions in the clinic could be utilized for those who endorsed screening items that indicated a higher level of risk in their alcohol or drug use.

Training for Clinic Providers/Staff. Training on the importance of addressing substance use as a primary care issue, about general aspects of MI, and about the Helping HAND screening process was conducted for all staff, consisting of one hour of didactic and brief skills-building. Standardized patient training with feedback was conducted for the medical providers to help them develop the skills for delivering the semi-scripted motivational response suggested on the tablet computers, which would allow for the MI-trained staff member to focus on the substance abuse issues and readiness to change. Foci for trainers were to impart the importance of identifying and addressing alcohol/substance abuse in order to assist patients to reach clinical goals, the spirit of MI as an evidence-based approach to assist in patients moving toward behavior change, and the specific strategy used by Helping HAND, which was self-administered screening, brief provider response, and a pass-through to an MI trained staff member if needed for brief intervention.

Screening Tools. Patients were annually given a tablet computer during the rooming process when arriving for their chronic care appointments, for self-administration while waiting for their primary

provider, though help was offered when a patient requested. The survey consisted of validated pre-screening questions (e.g., "How many times in the past year have you had 5 (men)/4 (women, persons 65 +) or more drinks in a day?"),[27,28] followed by more detailed screening questions for those who screened as positive for substance over-use according to their endorsements of items in the pre-screening. The Alcohol Use Disorders Identification Test (AUDIT) was used for screening related to alcohol over-use, and the Drug Abuse Screening Test (DAST) [29] was used for detailed screening related to drug use.

Provider response. In order to prevent the need for motivational interviewing (MI) training by providers, and the time needed for continued MI reinforcement to prevent drift, the tablet computer presented the provider with a suggested response and rationale for that response, based on the patient's screening endorsements. Results for the AUDIT and the DAST created risk categories, and responses were suggested for that risk category (Table 1). One response was suggested for negative screening, another response was suggested for low-level over-use of alcohol and/or use of marijuana only with little to no consequences, and another was recommended for any other risk level. The responses for negative screening and low level use included praise and reinforcement for healthy patient choices, and in the case of lower-level risk, provision of a pamphlet of information about healthy use of alcohol and/or information about drug use, designed to raise awareness in individuals who may have been unaware of their risk. This was followed by a description of the general guidelines for use of alcohol and drugs, as endorsed by SAMHSA.

This strategy allowed for minimal training and delivery time by the primary medical providers and minimized user error while maximizing buy-in by primary medical providers.

Brief Intervention. For those who screened at higher levels of risk and agreed to speak with an "in-house specialist," the MI-trained staff member, who for this clinic was either an RN or a social worker, delivered what is referred to in the SBIRT literature as a Brief Negotiated Intervention (BNI). This staff member who was trained on the BNI received MI training and reinforcement, and used a script to deliver the BNI (Table 2 for a section of the script) to help prevent drift from MI-consistent language.

Due to the lower level of risk, individuals who reported alcohol use that exceeded recommended limits, but did not score in the At Risk range in the AUDIT, as well as for drug use that was only marijuana use, and the DAST score was not above 1 (no reported consequences of drug use), were provided education that their use exceeded recommended limits, but did not receive a BNI. They were also provided with educational brochures to facilitate change in use, if interested.

Summary. Typically, by the time the primary provider entered the exam room, the survey was complete, as it took only 5–8 min, depending on the level of risk identified, and the provider could read the calculated result and suggested language for a motivational response (see Table 1). This calculation was conducted by Research Electronic Data Capture (REDCap) according to an algorithm that was created by all of the authors. Study data were collected and managed using REDCap electronic data capture tools hosted at this academic medical center.[30,31] REDCap is a secure, web-based software platform designed to support data capture for research studies, providing (1) an intuitive interface for validated data capture; (2) audit trails for tracking data manipulation and export procedures; (3) automated export procedures for seamless data downloads to common statistical packages; and (4) procedures for data integration and interoperability with external sources.

This process of self-administration on a tablet computer that calculated results in real time and provided motivational response language for the provider addressed important issues of (1) unreliable responses by patients due to social desirability bias and non-standardized questions, (2) time pressures in clinic operations, (3) time-intensiveness of MI training, to reduce confrontational or directive strategies less likely to motivate change, and (4) universal screening for proactive and non-stigmatizing questioning.

Table 1
Suggested responses by medical providers

AUDIT scores	DAST scores	Risk category	Suggested response
N/A	N/A	Negative	Reinforcing language: *SBIRT Screening Result: No use of alcohol and drugs (negative screen)!* *[Provide affirmation for the patient's choices and feedback about general guidelines.]* *[Say:] It's great that you are choosing to use alcohol in a healthy manner and not to use drugs. Maintaining that pattern will help you to stay clear of substance-related health problems in the future* *General guidelines for someone of your age and biological sex (male, 65 and older) for healthy use suggest having no more than 3 standard drinks in a sitting and no more than 7 standard drinks per week*
1–7	1	Exceeding General Guidelines[1]	Suggest cutting down: *SBIRT Screening Result: Positive use of marijuana but at a low level and negative screen for alcohol, and denies use of any other drugs (*low positive screen for marijuana, offer "Easy to Read Marijuana Facts" information*)* *[Provide affirmation for choice to safely use alcohol, and to avoid using most drugs. Provide feedback about general guidelines for alcohol use and recommendation to avoid using ANY drugs. Offer the "Easy to Read Marijuana Facts" booklet.]* *[Say:] "It's great that you're using alcohol in a healthy manner, and not using most drugs! Based on the screening, you sometimes use marijuana. You're not having problems related to marijuana; not using at all can also have some health benefits* *General guidelines for alcohol use recommend no drinking for persons under the legal age, and having 4 or less standard drinks in a sitting and 14 or less standard drinks per week for those 21 and older. Also, guidelines recommend not using any illegal drugs, including marijuana* *Some ideas that other people have found useful to stay within these guidelines are in this booklet "Easy to Read Marijuana Facts."* Similar language for low levels of alcohol over-use or a combination of marijuana with little to no consequences and low levels of alcohol over-use

Table 1
(continued)

AUDIT scores	DAST scores	Risk category	Suggested response
8–15	1–2	At Risk	Suggest cutting down *SBIRT Screening Result: Positive screen for alcohol and drugs (positive screen)* *[Encourage the patient to discuss more with the specialist.]* *[Say:] "Based on the information you provided on the screening, I think it may be important for us to focus a bit on your alcohol and drug use to make sure you can get the most out of your HIV treatment* *What are your thoughts on that?"* *"Would you be willing to speak with our in-house specialist about this after our appointment today?"*
16–19	3–5	High Risk	Consider treatment (*same as above*)
≥20	≥6	Dependent	Seek treatment (*same as above*)

[1]This category was created for individuals who exceeded quantity/frequency guidelines, or engaged in heavy episodic drinking, but had low scores on the AUDIT and/or DAST

Table 2

Section of SBIRT script for brief negotiated intervention (incomplete script)

Raise subject and ask permission	*"Hello, I am _____. How are you today? Would you mind taking a few minutes to talk with me about your use of alcohol and drugs?"*
Summarize screening results from tablet, and verify as needed	
Pros and cons of substance use	1) "*Help me understand through your eyes, the things you like about using [alcohol and/or specific drugs used]?"* Reflect back the pros: 2) "*What are some of the things you don't like very well about using [alcohol and/or specific drugs used]?"* Reflect back the cons: 3) "*So on the one hand [list pros], and on the other hand [list cons]."* **Write reasons for change on action plan.**
Feedback	1) *"I have some feedback from your screening and some information about guidelines for alcohol and drug use. Would you mind if I share that with you?"* 2) **Alcohol Use:** "*Based on your answers to the screening questions…"* **-[Low risk = didn't use AUDIT]** *"Your alcohol use is considered low risk, which means that you are at low risk for developing an alcohol problem."* **-[Exceeding recommended guidelines**] *"You are consuming more alcohol than is recommended to avoid illness and injury."* **-[At risk]** *"Your alcohol use is considered 'at risk,' which means that you are at risk for developing alcohol-related problems."* **-[High risk]** *"Your alcohol use is considered 'high risk,' which means that you are already experiencing significant problems related to your alcohol use."* **-[Dependent]** *"Your alcohol use is considered 'dependent,' which means that you are already experiencing significant problems related to your alcohol use."* 3) **Drug Use:** *"Based on your answers to the screening questions…"* **-[Low risk = didn't use DAST]** *"Your drug use is considered low risk, which means that you are at low risk for developing a drug problem."* **-[At risk]** *"Your drug use is at risk, which means that you are at risk for developing a drug problem.* **-[High risk]** *"Your drug use is considered 'high risk,' which means that you are already experiencing significant problems related to your drug use."* **-[Dependent]** *"Your drug use is considered 'dependent,' which means that you are already experiencing significant problems related to your drug use."*
Provide general information and elicit reaction	*"We know that drinking **more than 3 (F) / 4 (M) drinks in one sitting** or **more than 7 (F) /14 (M) in a week** can put you at risk for illness or injury. It can also cause health problems."* *"We know that **ANY use** of illicit drugs, using your medications not as prescribed, or using others' prescription medications can put you at risk for illness or injury and cause health problems."* *"What are your thoughts on that?"*
Readiness to change	1) Readiness Ruler (located on back page): *"On a scale from 1-10, with 1 being 'not ready at all' and 10 being 'completely ready', how ready are you to make any changes in your use of [alcohol and/or specific drugs]?"* *"You said you are __. That's great. That means you are __% ready to make change."*
	2) *"Why did you choose ____ and not a lower number like a 1 or a 2?"* Elicit as many reasons as possible, then reflect back reasons. **Write any additional reasons for change in the appropriate section of the action plan.**

Program Evaluation

For 12 months from 11/1/2018 to 10/31/2019, out of 1868 unique patients who attended appointments, 75 (4%) declined to do the screening, and 879 (47%) endorsed responses that indicated substance use, at various levels of risk: Exceeding General Guidelines (for alcohol only), At Risk,

High Risk, or Dependent. The risk levels are based on responses to the AUDIT and/or the DAST, which are only offered by the tablet computer if responses to prescreening questions indicated alcohol over-use per guidelines or recreational drug use within the past year.

In this 12-month initial Helping HAND period, 101 BNIs were given, and brochures about alcohol and/or drug use were given to 792 people. Enrollment in the Helping HAND substance use treatment program was limited to those who screened at High Risk or Dependent (AUDIT scores of at least 16, or DAST scores of at least 3). In this 12-month period, 142 individuals (7% of all screened; 16% of positive screens) screened at these higher levels, but either refused a BNI (74), or when they received a BNI, they declined to enter the program (68), though any of these individuals may have elected to join at a later time.

During the same period, 44 individuals were enrolled in the program, and received in-clinic psychological assessment and counseling along with evidence-based practices such as Contingency Management, referral to detoxification, primary residential substance abuse treatment, Intensive Outpatient Treatment, mental health treatment for a co-occurring mental health disorder, and/or medication-assisted treatment (MAT), with accompanying case management, peer support, and a 12-step group for those who were interested. This compares to the year prior to the initiation of the Helping HAND screening program, when nine individuals were referred by the clinic Mental Health Coordinator for substance abuse treatment.

Implications for Behavioral and General Health

Universal screening in primary care settings is recommended in order to reach individuals before their substance use becomes problematic, but implementation is challenging. Technology can assist in screening and an appropriate motivational response to screening results through the use of tablet computer self-administered screenings, automated, algorithmic calculations of risk level, and provision of a script. Accompanying that technology, an in-house trained professional for the appropriate motivational response can bring this screening forward to a recommended response.

In most chronic conditions, there are medications or non-pharmacologic strategies that can be used to stabilize health and control disease progression. Alcohol overuse and drug use have been demonstrated as barriers to consistent adherence to these medications and strategies in multiple studies, and those who overuse alcohol or use illicit substances generally have higher morbidity and mortality.[7,32–34] This can be seen starkly in the setting of HIV, where strict adherence to antiretroviral medication combinations are required to fully suppress the virus and allow for a life expectancy that is similar to those not living with HIV. Active substance abuse is listed in most if not all studies on barriers to adherence, which can result in viral resistance to the antiretroviral medications, which can lead to an advance to AIDS and death.[35,36]

There are important things to consider before implementing a similar program in a clinic setting. The capacity for referral for substance abuse treatment is essential to address issues revealed by the screening and may be costly for those patients who are uninsured or underinsured. Having linkages and partnerships with low-cost referrals for treatment are essential, or the ability to provide in-clinic treatment to maximize the likelihood that the patient will engage in treatment.

Seamless implementation of the project requires buy-in from all staff, including frontline medical assistant staff in order to distribute the screening tablets appropriately. For Helping HAND screening, medical provider support was high when they discovered the benefits of easily obtaining information about previously unknown substance overuse as well as the offering of in-clinic treatment.[37] Their support was key to establishing clinic buy-in. Training for all staff, even those not involved

in the actual screening or treatment allowed consistent messaging throughout the clinic visit. The 96% screening rate is compared to the 54% screening rate determined in a national sample in 2015.[38]

The SARS-coV-2 pandemic also added a level of difficulty not experienced prior to the pandemic. The program pivoted to telephone screening and telehealth visits, which allowed all previous components of the program to continue. However, the social desirability effect on responses when asked by telephone instead of by a computer was suggested as seen by the rate of those who endorsed responses indicating substance overuse dropped substantially, rose again during a brief return to in-person visits, and dropped again when returning to telehealth care and telephone screening when there was a COVID surge.

The Helping HAND program was largely successful in this particular clinic in an academic medical setting. Moreover, given the funds generated from the federal pharmacy discount program, the program is sustainable after the end of the SAMHSA funding period. Technology successfully facilitated screening, even in this clinic where most patients were living at the poverty level and there was generally a lack of computer skills. The pass-through provision of the BNI required only one clinic staff member to have advanced MI skills rather than requiring advanced training for all. Additionally, the academic medical center setting allowed for the availability of part-time in-clinic substance abuse treatment, through a paid contract with the program funded by the SAMHSA grant. In a primary care setting outside of an academic medical center, this last factor may be difficult to achieve, but the others would be possible, given some input of funds for the tablet computers and the minimal time needed for staff training. Anecdotally, many of the patients who enrolled in Helping HAND have had their lives changed markedly for the better, which reinforces the need to continue providing this important service.

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Declarations

Conflict of Interest The authors declare no competing interests.

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