

Implementation of Screening, Brief Interventions, and Referral to Treatment (SBIRT) in the Emergency Department

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Abstract

Introduction: Drug and alcohol use is an epidemic health problem affecting Americans at an unprecedented scale. The Screening, Brief Intervention, and Referral to Treatment (SBIRT) initiative was introduced in 2003 by the Substance Abuse and Mental Health Services Administration (SAMHSA) as a framework to leverage any interaction time between patients and healthcare providers to screen for drug and alcohol use, provide brief interventions, and appropriately refer individuals to substance rehabilitation treatment. The program was intended for use in different healthcare facilities, including emergency departments. **Purpose & Design:** This project was an implementation of evidence into practice to implement the Screening, Brief Intervention, and Referral to Treatment (SBIRT) framework in the Emergency Department (ED) of a California Hospital as a standard nursing intervention for all patients (18 - 65 years of age). This study aimed to evaluate the implementation and impact of SBIRT as a routine nursing practice within an ED. **Method:** The ED nursing staff (N = 125) received 4-hour SBIRT training, and the components of SBIRT were incorporated into the nursing process. Major outcomes were nursing staff knowledge of SBIRT and performance of implementing SBIRT interventions. Nursing staff knowledge was measured using the validated Confidence Scale (C-scale) pre-training, immediately post-training, and six-week post training. The C-Scale is a five-point Likert scale developed by Grundy (1993) to measure confidence in clinical skills. For this project, we used it to assess how confident staff felt in carrying out SBIRT interventions. Performance was measured by the percentage of eligible patients who received interventions in the first 6 weeks. **Results:** A paired sample t-test revealed a statistically significant difference between the total scores of the C-scale pre-test (M = 7.82, SD = 4.13) and immediate post-test (M = 16.81, SD = 3.7), t(86)

= 17.6, $p < 0.001$) and a statistically significant difference across all five items of the C-scale. In the first six weeks, 3.5% of eligible patients visiting the ED received an SBIRT intervention. **Conclusion:** Training the ED nursing staff and incorporating SBIRT interventions into the ED workflow was feasible, acceptable, and potentially effective. SBIRT implementation in the ED improves nursing knowledge, but intervention rates were lower than expected due to workflow barriers.

Keywords

SBIRT, Substance Use, Emergency Department, Nursing, Implementation Science, Quality Improvement

1. Introduction

Substance abuse remains a common and complex public health concern, with grave consequences for individuals, families, and communities. The 2022 National Survey on Drug Use and Health (NSDUH) revealed that 59.8% of individuals aged 12 and older participated in substance use within the previous month, including tobacco, alcohol, and illicit drugs [1]. Alcohol is the most prevalent substance, with 48.7% of the population engaging in its consumption [1]. Marijuana consumption showed the highest rates among illicit substances, with 22% of individuals aged 12 and above reporting use within the previous year [1]. Approximately 8.9 million individuals (3.2%) engage in opioid consumption, and an estimated 991,000 individuals misuse or illicitly consume fentanyl [1].

Emergency departments (EDs) are at the forefront of this crisis. In 2022, there were over 7.7 million substance use-related emergency visits in the United States [2]. Of these visits, 39.3% were linked to stimulant use, 27.3% to alcohol, 24.8% to opioids, 8.8% to Cannabis, and 6.2% to benzodiazepines and sedatives [2]. The financial implications are substantial, with the cumulative cost of ED and inpatient admissions for substance use reaching \$13.2 billion in 2017 alone [3].

The rising prevalence of substance use disorders necessitates a systematic approach to identify and assist at-risk individuals. In 2003, the Substance Abuse and Mental Health Administration (SAMHSA) initiated the Screening, Brief Intervention, and Referral to Treatment (SBIRT) program [4]. The SBIRT approach comprises three core components:

- **Screening:** Utilizing a validated universal screening instrument to identify risky behaviors associated with substance and alcohol abuse [5] [6].
- **Brief Intervention:** For individuals identified as at-risk, a brief intervention consisting of one or more motivational interviewing sessions (5 - 10 minutes each) is provided to augment intrinsic motivation for change [5] [6].
- **Referral to Treatment:** Referring individuals to an appropriate level of treatment based on the risk level determined during screening.

This approach has been implemented in various healthcare settings for two dec-

ades, and its effectiveness is supported by numerous studies. Research has shown SBIRT to be effective in decreasing alcohol intake [6], enhancing treatment participation, reducing substance use behaviors among high-risk populations [7], and initiating medication-assisted treatment for opioid use disorder [8]. Furthermore, patients report high satisfaction with SBIRT services, citing the non-judgmental approach and a sense of motivation to change [9].

Despite these positive outcomes, literature highlights persistent gaps concerning SBIRT's integration into busy clinical environments, particularly EDs. This project addresses this gap by investigating practical barriers, training effectiveness, and real-world implementation within a high-volume emergency setting [4]-[6].

The primary objective of this project was to introduce and assess the utilization of SBIRT in an emergency department to provide screenings, interventions, and referrals for patients at risk of alcohol and drug-related issues. A secondary objective was to assess the effectiveness of SBIRT training by evaluating nurses' knowledge and confidence.

2. Methods

2.1. Design and Setting

This project aimed to make SBIRT interventions part of the normal nursing workflow in an ED. A quasi-experimental, pre-post quality improvement project was utilized. The Ottawa Model of Research Use (OMRU), which prescribes three stages (review, monitoring, and evaluation), was used to guide the project's implementation.

The project was conducted at a busy ED of a Magnet nursing facility in California. The hospital has 463 beds, including 53 designated for emergency cases, and is a designated cardiovascular and stroke-neurology receiving center. The hospital is also a Lanterman-Petris-Short Act (LPS) facility, authorized to care for patients on psychiatric involuntary holds.

2.2. Participants and Ethical Considerations

The ED's nursing staff (N = 125) participated in the SBIRT adoption as a component of their annual training. The ED is staffed by approximately 125 registered nurses, 21 emergency physicians, and other personnel, with 11 to 21 registered nurses on each shift.

Eligibility for SBIRT interventions included all patients aged 18 to 65 years who presented to the emergency department

The project was approved by the University's and the Hospital's Institutional Review Boards (IRB). Patient-protected information was not accessed for this project. Aggregate data on the number of patients receiving interventions were obtained from electronic health records (EHR) statistical reports. Nursing staff responses to questionnaires were coded to ensure anonymity, and no individual participant data were accessed.

2.3. Intervention

The SBIRT interventions were incorporated into the ED nursing workflow for all visiting patients aged 18 - 65.

- **Staff Training:** All ED nurses were assigned online training modules and attended a 2-hour face-to-face training session conducted by a licensed SBIRT provider. Additionally, two social workers and nine registered nurses received four hours of extra training to become certified SBIRT “super-users” to support staff during implementation. Super-users were tasked with supporting emergency department staff in the implementation of SBIRT interventions.
- **Screening Process:** Upon a patient’s arrival, nursing staff conducted a two-step screening process. All eligible patients received pre-screening with the three-item tool Alcohol Use Disorders Identification Test (AUDIT-C) and a single question drug screening tool. Patients receiving positive screening received a full screening with Alcohol Use Disorders Identification Test (AUDIT) and Drug Abuse Screening Test (DAST-10) to determine the risk level for alcohol and drug use; each tool has ten items.
- **Brief Motivational Interventions:** For patients who screened positive based on AUDIT and DAST-10 scores and whose risk level justified an intervention, nurses conducted brief motivational interventions using open-ended questions, reflective listening, affirmation, and summarization to facilitate change-oriented conversations. To facilitate an effective exchange of ideas, the patients were provided with the following inquiries: Which aspects of drugs or alcohol do you like? Furthermore, what are your personal aversions towards alcohol and drugs? The SBIRT clinician was directed to engage in reflective listening to the patient’s replies prior to providing affirmation and summarization. The patient’s replies should be carefully listened to by the SBIRT practitioner before being validated and summarized. Upon doing an assessment of the individual’s preparedness and self-assurance in their ability to undergo transformation, the SBIRT provider proceeded to begin the change talk. The individual was requested to express their degree of readiness to decrease or cease their conduct by employing a numerical scale that spans from zero to 10. According to the scale, the probability of a patient reducing their intake ranged from zero (showing no likelihood) to ten (representing a high likelihood).
- **Referral to Treatment:** Referrals were included in the discharge process for at-risk individuals. Due to technical challenges with EHR integration, nursing staff manually added referral resources to the discharge instructions.

2.4. Measures

Outcomes were evaluated based on nursing staff’s knowledge and confidence in providing SBIRT and their performance as demonstrated through documentation.

- **Staff Knowledge of SBIRT:** The Confidence Scale (C-Scale), a validated and reliable questionnaire, was used to assess nurses’ confidence in their ability to

perform SBIRT activities [10]. In order to complete the C-Scale, nurses had to consider how confident they were in their capacity to utilize and interpret screening instruments, provide motivational interventions, and refer patients to the right treatments. Permission to use the scale was obtained from the publisher. The paper-and-pencil questionnaire was administered pre-training, immediately post-training, and six weeks post-training.

- **Nursing Staff Performance:** Performance was evaluated by quantifying the number and percentage of eligible patients who received SBIRT interventions in the ED during the first six weeks of the program. The impact of SBIRT on patients was not within the scope of this project.

2.5. Data Collection and Statistical Analyses

Participants completed the C-Scale on paper, and a personalized non-identified code was used to track responses for a paired t-test analysis. Data analysis was performed using IBM SPSS Version 24.0, significance set at $p < 0.05$. Descriptive statistics were calculated for demographic characteristics. Paired sample t-tests were used to compare C-Scale scores at pre-training, immediate post-training, and six weeks post-training.

3. Results

3.1. Participant Characteristics

Of the 125 invited ED registered nurses, 98 (78.4%) completed the demographics questionnaire. The mean age of participants was 36.1 years ($SD = 9.9$), 74.5% were female, and most held a Bachelor of Science in Nursing or higher. The mean ED experience was 7.8 years. Detailed characteristics are in **Table 1**.

Table 1. Demographic characteristics of the nursing staff sample ($N = 98$).

Variables	M (SD)	Frequency (%)
Age	36.06 (9.86)	
Gender		Male: 25 (26%) Female: 73 (74%)
Nursing Experience (years)	9.13 (9.45)	
ED Experience (years)	7.83 (6.94)	
SBIRT Experience (years)	3.87 (4.83)	
Experience with Motivational Interviewing (years)	3.32 (4.82)	
Experience with Substance Use Treatment (years)	5.43 (7.14)	
Highest Level of Nursing Education		ADN: 11 (11.3%) BSN: 69 (71.1%) MSN: 17 (17.5%)

Continued

Experience with SBIRT	Yes: 18 (18.4%)
	No: 80 (81.6%)
Familiarity with Motivational Interviewing	Yes: 23 (23.5%)
	No: 75 (76.5%)

3.2. Staff Participation and Training

Online training modules were completed by 82% of nurses (n = 92), and 94% (n = 117) attended the face-to-face training sessions. Eleven staff members (two social workers, two nurse practitioners, and seven registered nurses) were certified as super-users.

3.3. Nursing Staff Knowledge of SBIRT

Of the 117 nurses who attended training, 87 (74%) completed the C-Scale pre- and immediate post-training. A total of 23 participants (20%) also completed the C-Scale six weeks post-training. The training resulted in a significant improvement in nursing staff confidence from pre-training (mean = 7.8 ± 4.1) to immediate post-training (mean = 16.8 ± 3.7 ; $t = 17.6$, $p < 0.001$). Improved confidence scores were maintained six weeks post-training (mean = 15.9 ± 4.0 ; **Table 2**).

Table 2. Pre-and-Post training paired samples t-test for the C-scale items (N = 87).

Item	Item Description	Pre-Training Mean (SD)	Post-Training Mean (SD)	95% CI of the Difference	t	Sig. (2-tailed)
1	I am certain that my performance of SBIRT is correct	1.55 (0.873)	3.51 (0.729)	1.731 to 2.177	17.5	0.000
2	I feel that I perform SBIRT without hesitation	1.60 (0.908)	3.31 (0.826)	1.478 to 1.947	14.5	0.000
3	My performance of SBIRT would convince an observer that I'm competent at this task	1.55 (0.859)	3.37 (0.878)	1.602 to 2.031	16.8	0.000
4	I feel sure of myself as I perform SBIRT	1.57 (0.844)	3.33 (0.831)	1.536 to 1.981	15.7	0.000
5	I feel satisfied with my performance of SBIRT	1.53 (0.847)	3.30 (0.837)	1.555 to 1.985	16.4	0.000

- **Pre-and-Post Training:** A paired sample t-test showed a statistically significant increase in the total C-Scale score from pre-test (M = 7.82, SD = 4.13) to post-test (M = 16.81, SD = 3.7), $t(86) = 17.6$, $p < 0.001$. Statistically significant improvements were seen on all five individual items of the C-Scale (**Table 2**).
- **Pre-training and Six Weeks Post-training:** Among the 23 participants with six-week follow-up data, a statistically significant difference remained between the C-Scale pre-test (M = 8.65, SD = 4.59) and six-week post-test (M = 15.34, SD = 4.15) scores ($t(22) = 5.4$, $p < 0.001$).
- **Post-training and 6-Week Post-training:** There was no statistically significant difference in total C-Scale scores between the immediate post-test (M = 15.86, SD = 3.46) and the 6-week post-test (M = 15.22, SD = 4.20) ($t(21) =$

-0.86, $p = 0.398$). However, the average scores in six weeks were marginally lower than immediately post-training.

3.4. Nursing Staff Performance & SBIRT Administration

During the first six weeks of the program, 9291 patients presented to the ED, of whom 6510 were eligible for screening. EHR data showed that only 3.5% ($n = 228$) of eligible patients received pre-screening for alcohol and substance use. Among delivered SBIRT components, brief interventions were most common (72%), while referral to treatment occurred least frequently (12%), emphasizing critical areas for operational improvement. Due to EHR limitations, a report on patients who screened positive could not be generated. Paper records indicated that 11 patients received a full alcohol screening (AUDIT-10) and six received a full drug screening (DAST-10).

4. Discussion

This project demonstrated that implementing an SBIRT program in a busy ED is feasible and significantly increases nursing staff's confidence to address substance use with patients. The immediate and statistically significant increase in C-Scale scores post-training underscores the effectiveness of the educational intervention. The observed decrease in confidence scores at the six-week follow-up suggests that gains in knowledge and confidence may diminish without ongoing reinforcement, highlighting the importance of recurrent "booster" training to sustain the intervention's impact over time. These findings are consistent with prior studies demonstrating that targeted educational interventions can enhance clinical competence among nurses [3] [6]. However, our results also revealed a notable discrepancy between increased staff confidence and actual intervention rates, emphasizing workflow barriers that can hinder effective implementation [4] [10].

A primary goal was the universal screening of eligible patients, but performance fell short of this objective. The screening rate of 3.5% in the initial six weeks is low but represents important progress from the previous state, where no formalized screening process existed. This low rate likely reflects significant challenges in implementing new workflows within a fast-paced, high-pressure ED setting. Contributing factors included competing clinical priorities, time constraints, and—importantly—technical difficulties with EHR documentation. One primary barrier was manual documentation due to incomplete EHR integration, which caused workflow inefficiencies and increased workload during periods of high patient volume. Nurses had to use a specific folder to file the screening forms and had to use manual notes to document the provision of services, instead of having the interventions intergraded into the flowsheets of ER care. For instance, during high-acuity situations like trauma activations or psychiatric emergencies, nurses had to focus on immediate patient care—administering medications, stabilizing patients, or coordinating consults. In those moments, stepping away to retrieve paper forms or complete manual documentation wasn't realistic, which increased

the chances of missing the SBIRT intervention or not documenting it fully.

Only 12% of patients received a referral to treatment, which may reflect several challenges—patients not being ready to quit, limited referral options, long wait times, and lack of available resources. Workflow barriers also played a role, as the referral process was manual and time-consuming, making it difficult for staff to complete during busy shifts.

This finding aligns with previous research emphasizing the critical role of EHR integration in supporting sustainable SBIRT adoption [5]. The importance of a user-friendly, integrated EHR system cannot be overstated; other studies have shown that streamlined electronic screening tools can increase screening rates to as high as 96% [11]. The planned EMR update at the facility is a promising development that could significantly enhance SBIRT implementation and documentation.

Variability in implementation adherence was highlighted in other SBIRT studies, particularly lower rates during night shifts, highlights staffing, workload, and resource allocation challenges. Due to the limitation of EHR integration and access, shift-related barriers were not examined in this study [3] [4].

Although the screening rate was modest, screening 228 patients in six weeks is a positive step toward normalizing substance use screening in the ED. This demonstrates that positive change is possible, albeit gradual, and provides a foundation for building a more robust and integrated program moving forward.

To address these challenges and sustain the gains achieved, comprehensive system-level interventions are needed. These should include EHR system enhancements, dedicated staffing, and robust training reinforcement programs. Regular monitoring and tailored support are essential to ensure sustained SBIRT integration and efficacy within the clinical workflow [8] [9].

Strengths and Limitations

This project's strengths include its foundation in a theoretical framework (OMRU), the use of a validated instrument (C-Scale) to measure nurse confidence, and the successful training of a large nursing cohort in a busy clinical setting.

However, the study has several limitations. First, as a single-site project, its findings may not be generalizable to other EDs with different resources or patient populations. Second, the C-Scale is a self-report measure, which may be subject to social desirability bias. Third, the low follow-up rate for the six-week C-Scale assessment ($n = 23$) means these results should be interpreted with caution, as they may not be representative of the entire cohort. Finally, EHR limitations prevented a complete analysis of the screening cascade, from positive pre-screens to full assessments and referrals, which is a critical data gap.

5. Conclusion

Training ED nursing staff in SBIRT is a feasible strategy that significantly improves their confidence in performing screenings and brief interventions for sub-

stance use. While this project successfully established a formalized SBIRT process, the initial intervention rate of 3.5% underscores the significant barriers to implementation in a complex clinical setting. Future efforts must prioritize seamless EHR integration, ongoing training to maintain nurse confidence, and addressing workflow challenges. This project serves as a crucial foundational step toward integrating substance use screening as a standard of care in the emergency department, ultimately holding the potential to improve patient outcomes.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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