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# Improving SBIRT Screening in Primary Care: A Process Evaluation Project

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Improving SBIRT Screening in Primary Care: A Process Evaluation Project

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## Improving SBIRT Screening in Primary Care: A Process Evaluation Project

### Abstract

**Background:** Screening for the use of alcohol and drug use in primary care practices has been shown to decrease substance misuse both in quantity and frequency. Integrating evidenced based clinical practice guidelines for substance use, into a sustainable process, can reduce substance misuse, improve patient care, and reduce health risks and the financial burden of the sequelae of substance use on our health care system.

**Purpose:** The purpose of this project was to evaluate and optimize the current practice of Screening, Brief Intervention, and Referral to Treatment (SBIRT) for substance use in a Vermont based primary care practice.

**Methods:** The Donabedian Quality of Care Model provided the conceptual framework for this process evaluation. A gap analysis of SBIRT process points was conducted to inform this project and synthesized into an SBIRT Process Flowchart. Chart reviews were then completed on SBIRT current practice processes, which identified gaps in the process, and allowed for collaboration with staff to improve the screening process.

**Intervention:** An evaluation was conducted of the current SBIRT screening process in a primary care setting over a five-month period. Gaps identified were addressed in multiple PDSA (Plan, Do, Study, Act) cycles with interventions including process improvements with flagging patients, screener scoring, risk stratification and appropriate Electronic Medical Record (EMR) documentation.

**Results:** During the project period, overall error rates decreased from 29.3% to 7% and successful SBIRT screening rose from 72% to 93%.

**Conclusions:** Ongoing education and training improved the scoring, appropriate risk stratification and documentation in our outpatient primary care practice. Although improvement was made in most of the key quality indicators, ongoing work is needed to ensure delivery of interventions and treatment for those patients who need it, and that related documentation is completed.

**Key Terms:** alcohol, substance abuse, SBIRT, health screening, adults, and primary care.

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## Improving SBIRT Screening in Primary Care: A Process Evaluation Project

### **Introduction**

#### **Problem Description**

Vermont ranked number one for the highest use and abuse of alcohol, marijuana and cocaine in 2013 (National Survey on Drug Use and Health (NSDUH), 2013-2014). As part of a response to this, Mt. Ascutney Hospital in Windsor, Vermont, implemented SBIRT within their primary care practice in December 2017. This initiative was to promote routine screening and early intervention for alcohol and drug abuse, however, a process evaluation had not been conducted, thus gaps within the current screening structure were unknown. Given the potential SBIRT screening has to help reduce the quantity and frequency of substance use, evaluating the current state of SBIRT screening in primary care allows for process improvement and ensures a sustainable screening process.

#### **Available Knowledge**

In 2003, Substance Abuse and Mental Health Services Administration (SAMHSA) developed a systematic approach for screening and treating patients for alcohol and substance misuse that could be implemented in any health care setting. This screening, known as SBIRT, is used to screen for current alcohol and substance misuse, and for the early detection of risky drinking and substance abuse behaviors and patterns (Office of National Drug Control Policy, 2008).

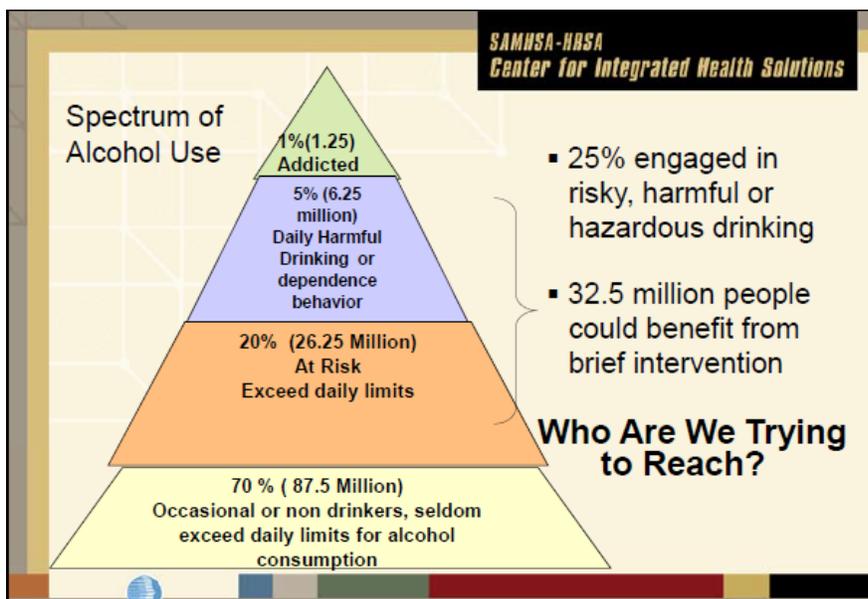
Screening with SBIRT involves an initial assessment of risky substance use behaviors with the use of standardized screening tools (SAMHSA-HRSA, 2018). Once initial screening is complete, patients identified as being at risk receive a brief intervention. This intervention

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involves a conversation, often employing motivational interviewing techniques, to engage the patient and provide feedback and advice (SAMHSA-HRSA, 2018). For those identified at harmful or hazardous risk, a referral to treatment is made by the provider. Referral options include substance use therapy, or treatment, based upon alcohol use and risk stratification. An example of this stratification can be seen in Figure 1 below (SAMHSA-HRSA, 2018).

As demonstrated in Figure 1, the spectrum of alcohol use ranges from approximately 70 percent of occasional, non-harmful drinkers to the 1 percent who are addicted. The group of people that could most benefit from early intervention of SBIRT screening are the 25 percent, approximately 32 million, people that are engaged in risky or harmful drinking.

Figure 1. Spectrum of Alcohol Use



SBIRT screening has been shown to improve the number of patients who receive early intervention and appropriate treatment, reduce related health impacts, reduce health care costs, and decrease the use of substances. Substance misuse is one of the leading causes of preventable death in the US (Cherpitel & Ye, 2008). Thirty percent of Americans misuse alcohol and engage

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in risky drinking behavior (Jonas et al., 2012) and 7% of Americans have a history of illicit substance use (McCance-Katz, 2012). Substance misuse can impact a person's mood, cognition, blood sugar, blood pressure, and heart rate, which could lead to subsequent heart attack, stroke or even death (National Institute on Drug Abuse (NIDA), 2017). Substance misuse is also associated with health consequences such as heart disease, cancer, cirrhosis, psychiatric issues, suicide, and premature births (Shuckit, 2009).

The financial burden on the health care system from substance abuse and secondary health consequences exceeds 230 billion dollars (Glass et al., 2015). The estimated national cost savings with the use of SBIRT, has been shown to range from \$3.81 to \$5.60 for every \$1.00 spent (SAMHSA-HRSA, 2018). In Vermont it is estimated that for every \$1 invested in prevention services the state saves \$10-18 in associated health care costs (Vermont Department of Health, 2017). Taking into consideration our nation is spending more than 230 billion dollars (Glass et al., 2015) on the associated health impacts from substance use, this potential cost savings validates the need for a successful screening process.

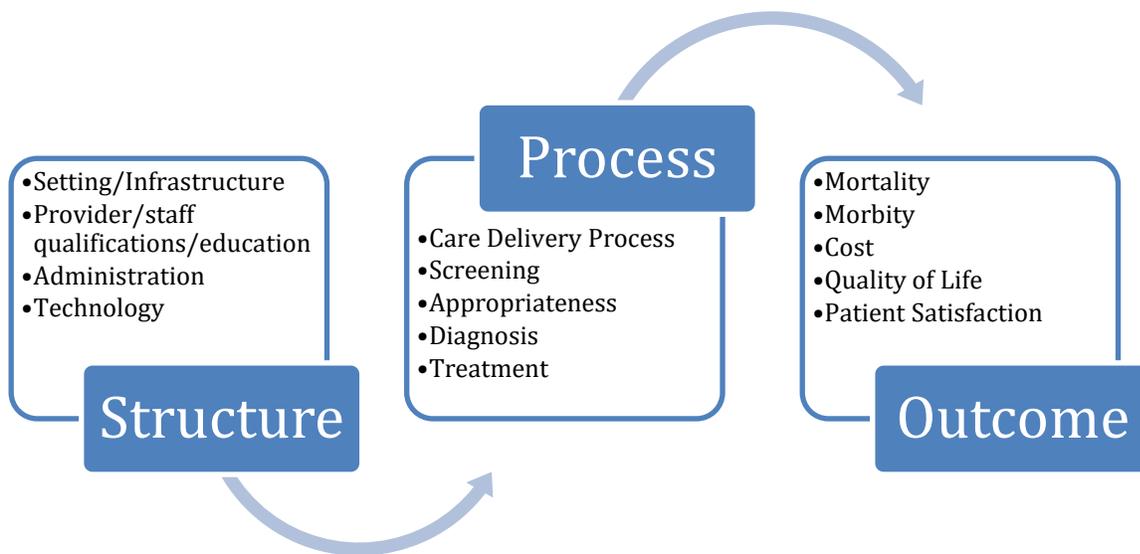
### **Rationale**

The rationale for this this project is to identify and address gaps within the current SBIRT screening process and increase successful SBIRT screening. This project aims to provide a sustainable screening process in order to reach those that are engaged in, or at risk, for substance misuse. To help identify these gaps, Donabedian's Health Care Quality Framework (HCQF) was used to evaluate SBIRT screening processes. The HCQF framework is a triad of concepts used to evaluate quality of health care processes. The HCQF model is fitting for optimizing SBIRT screening in primary care as it requires examination of all aspects of screening process to identify areas of improvement. First, the HCQF framework requires examination of structure, process, and

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outcomes as depicted in Figure 2. The utilization of this framework allowed for examining the current structure for SBIRT screening, and to identify any physical, technological, or training barriers that prevented the assurance that staff involved in the SBIRT screening process, are set up for success (Ayanian & Markel, 2016). Second, the process within which SBIRT was being delivered was examined. Based on the HCQF model, a flow chart was developed to document the current steps related to structure, process, and outcome in SBIRT screening. This was used to help identify gaps within the SBIRT screening process and to ensure screening sustainability.

Figure 2. HCQF Framework



**Specific Aims:** The aim of this project is to improve successful SBIRT screening at Mt.

Ascutney Hospital's primary care practice by 10% for identified patients 18 years of age or older over a three-month period. This will be conducted through review of the current SBIRT process and implementation of interventions based on identified gaps.

## **Methods**

### **Context**

This project was conducted at Mt Ascutney Hospital, which is a small rural hospital located in Windsor, Vermont. It serves approximately 10,000 patients in outpatient practices. The outpatient practice consists of pediatrics, family practice and internal medicine. For the purpose of this project, only the internal medicine practice was utilized, which covers approximately 4,000 adult patients. The target population identified for SBIRT screening as part of this process review are those patients presenting for annual wellness visits, annual physical exams or new patients to the practice. Staff involved within the SBIRT screening process include secretarial staff (registration, team secretary and check-in/out staff), flow staff (CMAs, LPNs, RNs) and medical providers (MDs, DOs, APRNs, and PAs). This practice also has on-site psychiatric and LADAC (licensed alcohol and drug counselor) services. For the purpose and success of SBIRT within our organization, these specialty practices have also undergone training and are available as referral sources and to provide ongoing treatment interventions.

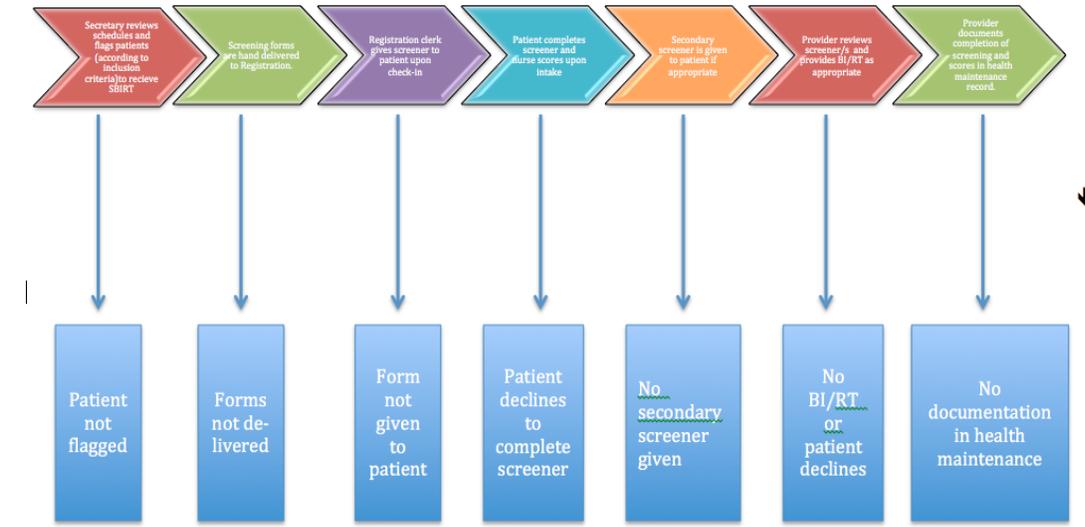
### **Interventions**

This project included construction of a process flow chart to identify current processes, data collection from 351 chart reviews, and improvement interventions. The process flow chart (Figure 3) was designed documenting the existing screening process to help identify areas of improvement. Each of the 351 charts were reviewed utilizing the flow chart to identify if the patient was annotated on the schedule to receive SBIRT, if they were flagged at registration, if registration gave the screening form to the patient, if the patient completed the form, if nursing

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staff scored the screening tool accurately and if the provider documented the score and any intervention or referral in the appropriate area of the EMR.

Figure 3. SBIRT Screening Flow Chart



The data collected from the chart reviews were maintained on a spreadsheet. The spreadsheet was updated on a weekly basis and allowed for tracking of gaps within the process identified as needing improvement. Practice improvement interventions were then implemented based on these findings.

Intervention implementation was driven by gaps identified utilizing the flow chart and included additional training and education. First, additional training was given to administrative staff to ensure more than one staff member knew how to appropriately flag patients within the EMR to receive SBIRT. Second, registration staff was given master copies of the SBIRT screening form so that screeners would be readily available to hand out to patients upon check-in. Training was then given to registration staff to instruct those patients who declined, to give the incomplete form to nursing upon intake. This would allow for documentation of patient declines. Next, additional training was conducted with nursing staff to ensure correct scoring of

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initial screeners and review of positive screens that would indicate the need for secondary screening. Lastly educational meetings were held with medical providers individually and collectively, to review correct documentation of SBIRT scores within the EMR as well as BI and RT's. Staff turnover was an unanticipated issue during this project, and as a result, SBIRT training was added to our new employee orientation checklist.

### **Study of the Interventions**

Error rates were determined based upon data analysis using Pareto Analysis. This technique is used to help determine which tasks within a process cause the most significant effect overall and highlight opportunities for practice change interventions. The Pareto Principle is based upon an 80/20 rule which states that essentially eighty percent of problematic outcomes are caused by twenty percent of the associated tasks, otherwise also known as the “trivial many and vital few”.

### **Measures**

To identify screening improvements, error rates were measured using Pareto Analysis, utilizing data from 351 chart reviews. This project included adult patients aged 18 or older who presented to primary care for annual wellness exams, physical exams or were new to the practice. This population allows for routine evidence-based screening for early detection of substance abuse.

**Analysis:** Data collected during this project was analyzed on a monthly basis, and divided into two phases, using Pareto charts. These charts help identify specific areas of needed improvement, the “vital few,” within the SBIRT screening process. The first phase of this project included Months 1 and 2 and collected baseline data prior to any interventions. Interventions

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were then focused on the gaps that were identified and improvement processes were implemented during phase two in Months 3-5. This allowed for month-by-month comparison of intervention effects as well as identification of other potential gaps.

### **Ethical Considerations**

The project proposal was presented to Mt. Ascutney Hospital's quality board and was deemed quality improvement not required to undergo organizational Internal Review Board (IRB) approval. The University of New Hampshire (UNH) Nursing Department Quality Improvement Review Committee reviewed this project and determined it fit the criteria for quality improvement and did not require IRB approval.

The schedules and screeners analyzed for this project that contained identifying information were locked in a secure cabinet and reviewed on a weekly basis. Once these documents were reviewed, the schedules were shredded and the screeners were sent to be scanned into the patient's electronic medical record (EMR). The results of the review were maintained on a spreadsheet for further data analysis without any patient identifiable data.

### **Results**

#### **Results**

A total of 351 patient charts were reviewed over the course of this project. Phase one, Months 1 and 2, 153 charts were reviewed to collect baseline data of the current screening process. Phase two, Months 3-5, included review of 198 charts and intervention implementation took place during this phase. The goal of this project was to identify gaps in the current SBIRT screening process and improve SBIRT screening by 10%. The interventions implemented in this project resulted in improved successful SBIRT screening by more than 20%, from 72% in phase

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one to 93% (Table 1) in phase two. In addition, the overall error rates decreased from 29.3% in phase one, to 7% (Figure 4) in phase two.

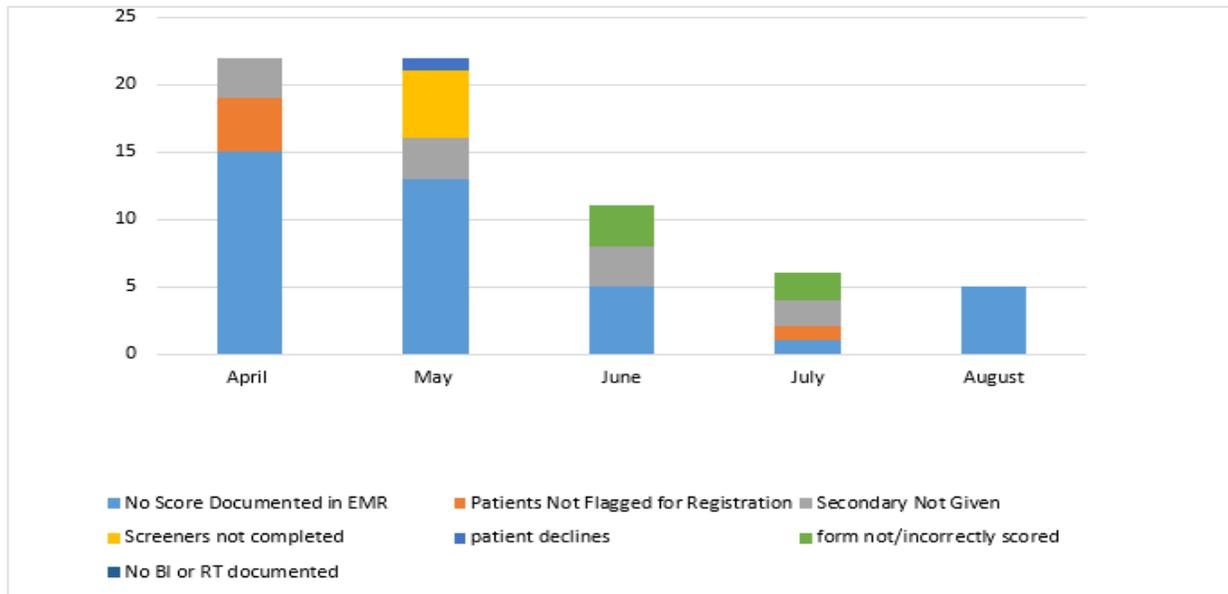
Table 1 demonstrates the number of errors by month and Figure 4 depicts the type of errors. The most frequent error was documentation within the EMR, followed by no secondary screener given, incorrect scoring, screeners not completed and patients not flagged for SBIRT screening.

Table 1. Number of Errors and Total Rate of Successful Screening by Month

	Patients Not Flagged for Registration	Screeners Not Completed	Patient Declines	Form Not/Incorrectly Scored	Secondary Not Given	No Score Documented in EMR	No BI or RT Documented	Total Rate of Successful Screening
April	4	0	0	0	3	15	0	72%
May	0	5	1	0	3	13	0	71%
June	0	0	0	3	3	5	0	82%
July	1	0	0	2	2	1	0	87%
August	0	0	0	0	0	5	0	93%
Total # Errors	5	5	1	5	11	39	0	

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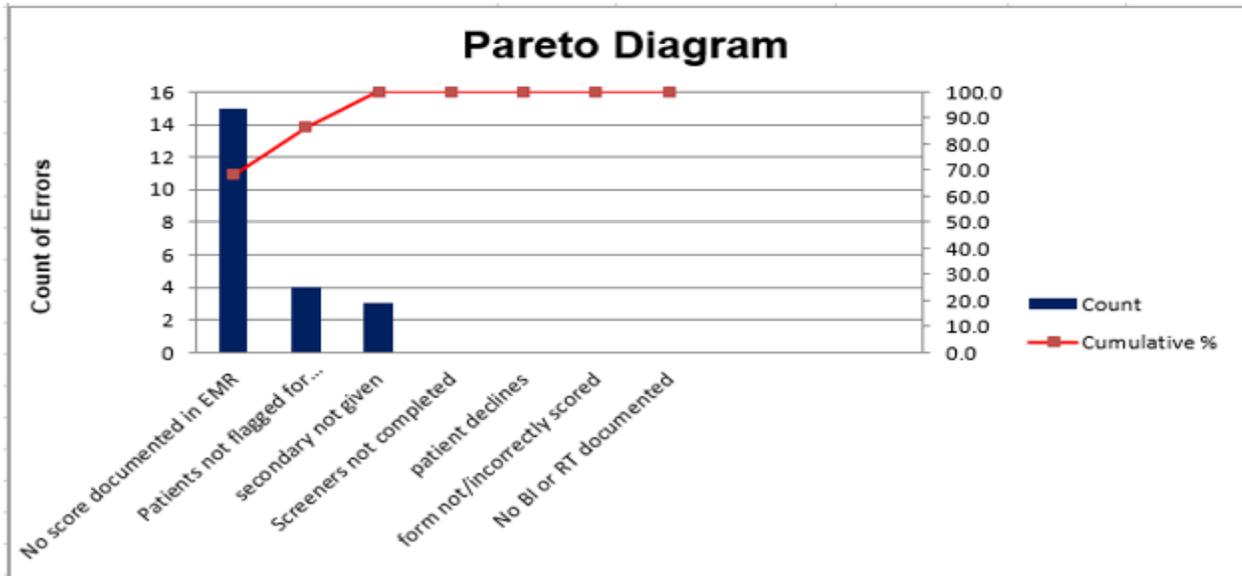
Figure 4. Sum of All Errors



During phase one, appropriate flagging was completed on 150 of the 153 patients scheduled. Of these 150 patients, 124 screeners were given, and 118 of them were completed, giving a baseline completed screening rate of 95%. Of the 118 completed screeners, all of them were scored correctly. There were 22 patients with whom a DAST/AUDIT were recommended but only 15 were completed. Of the 15, a BI was recommended for 2 patients and both of those BIs were completed. Of the original 118 completed screeners, 90 of them were documented correctly in the EMR, corresponding to a 76% correct documentation rate. Figure 5 and 6 demonstrate the Pareto analysis for Months 1 and 2 and highlight a baseline of priority areas for practice change. Both Months include result documentation error rates of 19% and 17% respectively, flagging patients with a 5% error rate, completion of primary screening at 7% error rate and secondary screening with a 4% error rate occurring in both months.

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Figure 5. Month 1 Pareto Analysis

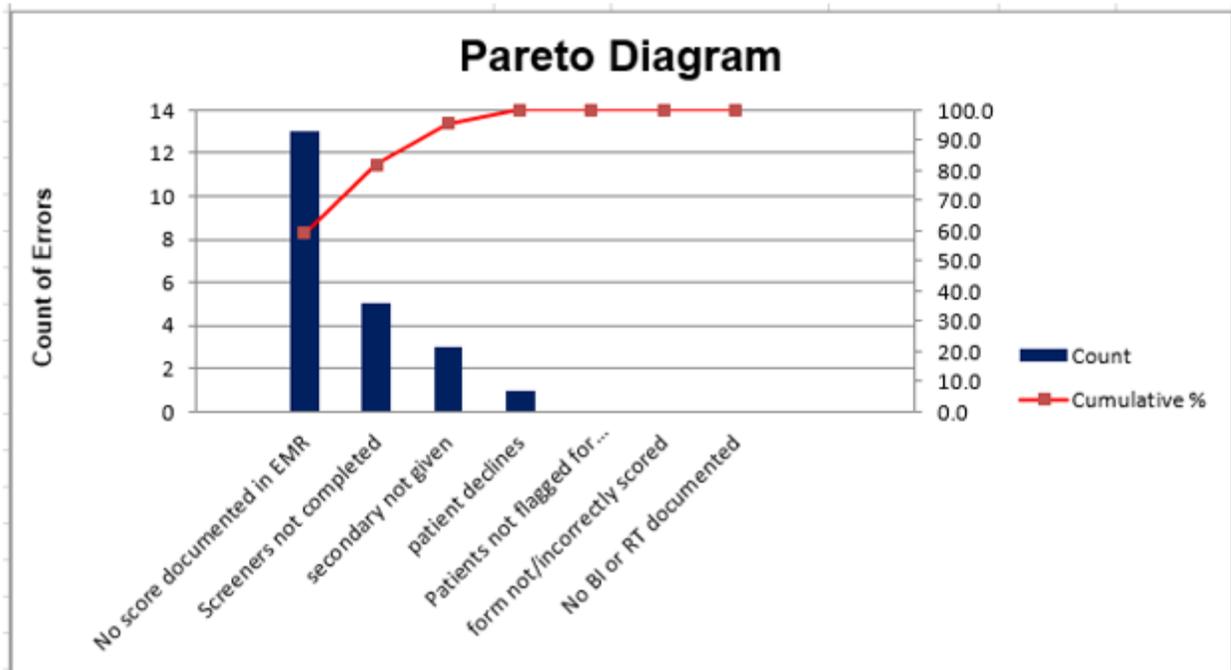


SBIRT screening- April (78)			
Error (Cause)	Count	Cumulative Count	Cumulative %
No score documented in EMR	15	15	68.2
Patients not flagged for registration	4	19	86.4
secondary not given	3	22	100.0
Screeners not completed	0	22	100.0
patient declines	0	22	100.0
form not/incorrectly scored	0	22	100.0
No BI or RT documented	0	22	100.0

Total Error Rate = 28.20%

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Figure 6. Month 2 Pareto Analysis



SBIRT screening- May (75)			
Error (Cause)	Count	Cumulative Count	Cumulative %
No score documented in EMR	13	13	59.1
Screeners not completed	5	18	81.8
secondary not given	3	21	95.5
patient declines	1	22	100.0
Patients not flagged for registration	0	22	100.0
form not/incorrectly scored	0	22	100.0
No BI or RT documented	0	22	100.0

Total Error Rate = 29.33%

Phase two consisted of 198 charts reviewed for those patients identified to receive SBIRT screening. Of those, 196 patients were flagged correctly and 146 screeners were given. The 50 screeners that were not given were due to cancellations or no show appointments. There were 142 completed screeners, 3 documented patient declines, and 1 unaccounted for. This was a completion rate of 97%. Of the 142 completed screeners, 96% of them were scored correctly. Based upon this scoring, 36 were identified as at risk with recommended DAST/AUDIT and 31

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received it, corresponding with an 86% secondary screening completion rate. There were 13 patients identified recommending brief intervention (BI), and of those, 12 patients received intervention, 1 patient required referral to treatment, and the referral to treatment was completed. Of the original 142 completed screeners, 123 of them were documented correctly in the EMR, corresponding to an 87% correct documentation rate.

Implementation of interventions in phase two began in Month 3 (Figure 7). Interventions to improve result documentation included provider education. This was done through monthly meetings with education and training of where and how to document SBIRT results within the EMR so that these results could be easily reviewed for care management, data extraction, and reporting efforts. Subsequently, error rates for Months 3, 4 and 5 were 8%, 4% and 7% respectively (Figure 7-9). Overall correct documentation within the EMR during phase one ranged from 67% to 79% and in phase two ranged from 64% to 100%.

Interventions to reduce the error rate of patients not being flagged for screening included expanded training within the secretarial staff. Specifically, more staff were trained on how and when to flag patients. This additional training was reflected with no missed flagging during Months 2, 3 and 5 and 2% not being flagged in month 4 (Figure 6-9).

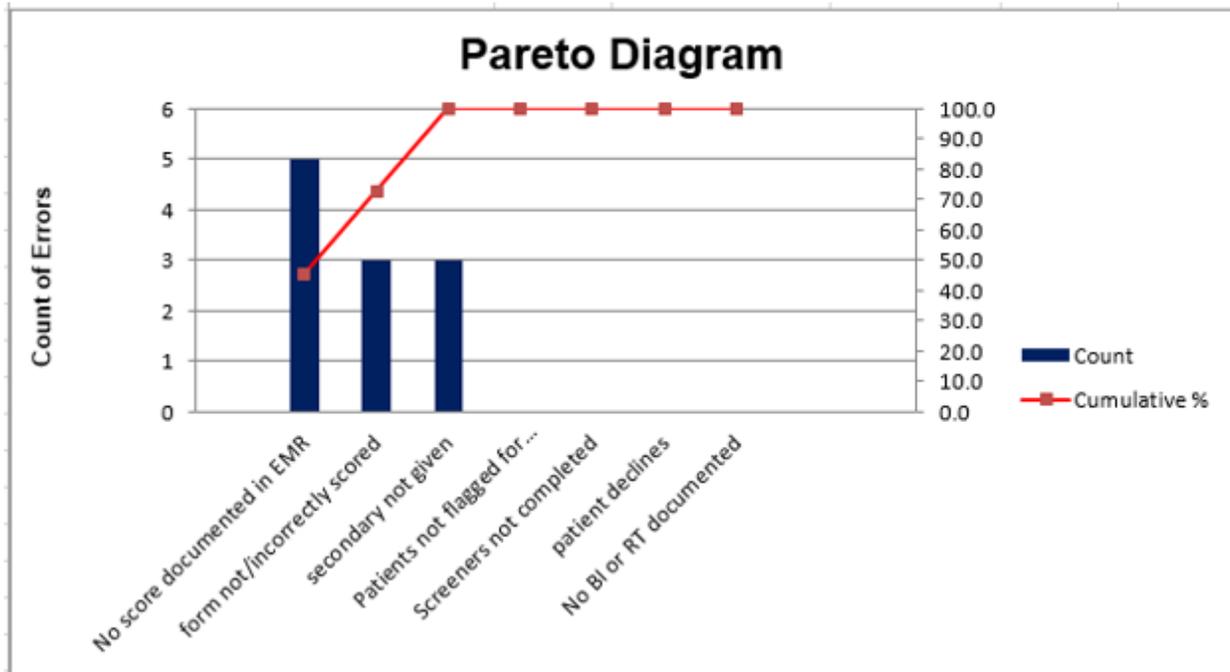
The baseline error rate of incomplete or missing screeners was 6% (Figure 6) prior to any interventions. To target this gap, a meeting was held with flow staff to review the collection process of completed screening forms. It was identified during this meeting that some new flow staff were documenting other assessments and not using the SBIRT screeners, thus accounting for some of the incomplete or missing screeners. After this educational intervention, no further screeners were incomplete or missing (Figures 7-9).

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In phase one, Months 1 and 2, 4% of errors were caused from secondary screeners not being completed. This was in part due to incorrect scoring of primary screeners, and thus additional education with nursing and flow staff on correct scoring and score interpretation led to a reduction of incomplete secondary screening of 5%, 2% and 0% respectively in Months 3, 4 and 5 (Figures 7-9), as well as a reduction in score error rates of 4% in Month 4 and 0% in Month 5 (Figures 8-9). The education and re-training of correct scoring and appropriate risk stratification resulted in more patients correctly identified as needing brief intervention. Those patients identified as at risk and requiring a secondary screening ranged from 0% to 100% completed in phase 1, and improved to 50% to 100% in phase two.

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Figure 7. Month 3 Pareto Analysis

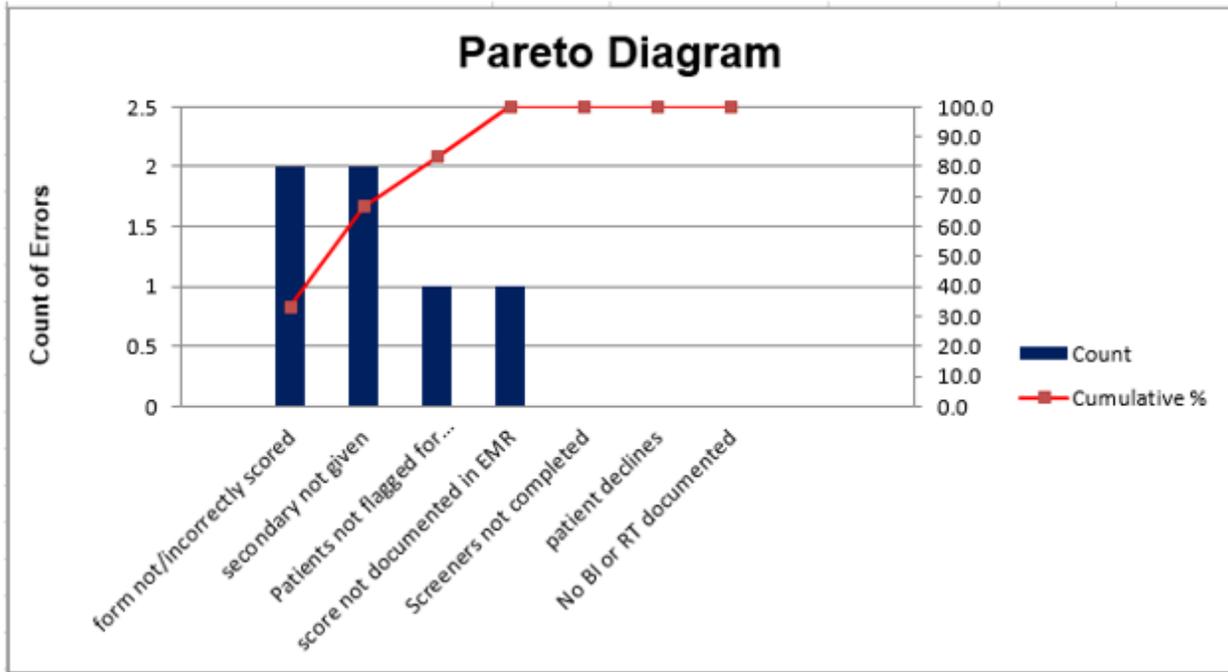


SBIRT screening- June(60)			
Error (Cause)	Count	Cumulative Count	Cumulative %
No score documented in EMR	5	5	45.5
form not/incorrectly scored	3	8	72.7
secondary not given	3	11	100.0
Patients not flagged for registration	0	11	100.0
Screeners not completed	0	11	100.0
patient declines	0	11	100.0
No BI or RT documented	0	11	100.0

Total Error Rate = 18.33%

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Figure 8. Month 4 Pareto Analysis

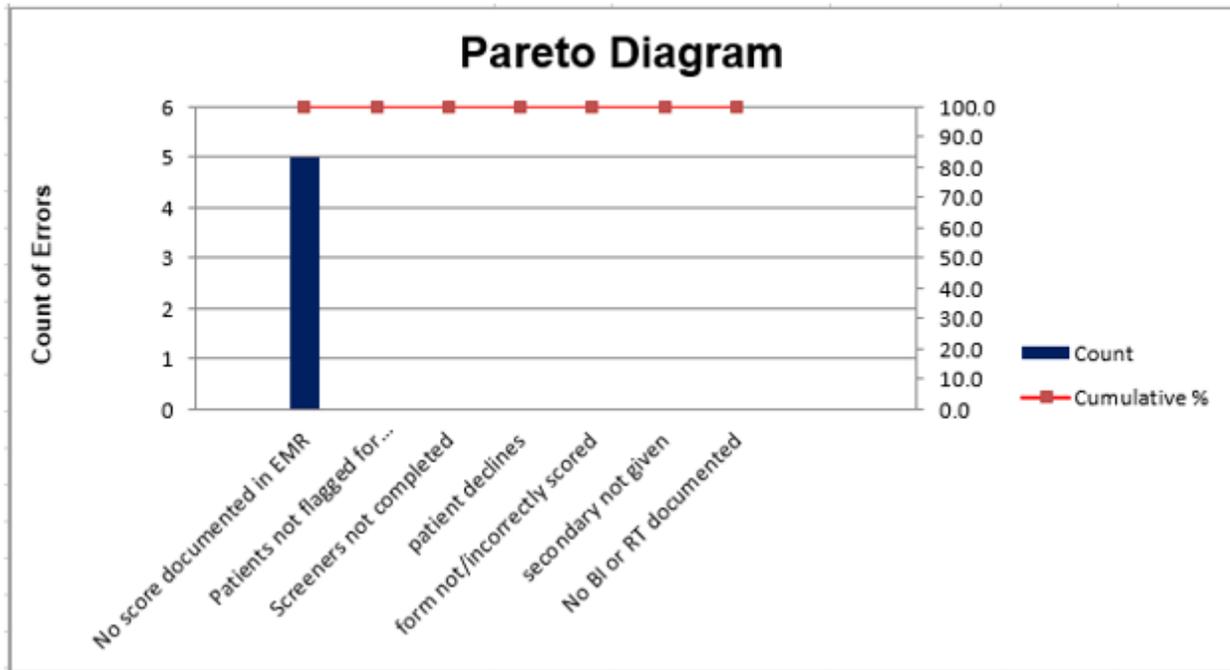


**SBIRT screening- July (47)**

Error (Cause)	Count	Cumulative Count	Cumulative %
form not/incorrectly scored	2	2	33.3
secondary not given	2	4	66.7
Patients not flagged for registration	1	5	83.3
score not documented in EMR	1	6	100.0
Screeners not completed	0	6	100.0
patient declines	0	6	100.0
No BI or RT documented	0	6	100.0

Total Error Rate = 12.77%

Figure 9. Month 5 Pareto Analysis



SBIRT screening- Aug (69)			
Error (Cause)	Count	Cumulative Count	Cumulative %
No score documented in EMR	5	5	100.0
Patients not flagged for registration	0	5	100.0
Screeners not completed	0	5	100.0
patient declines	0	5	100.0
form not/incorrectly scored	0	5	100.0
secondary not given	0	5	100.0
No BI or RT documented	0	5	100.0

Total Error Rate= 7%

### Discussion

#### Summary/Interpretation

SBIRT is an evidence-based tool that is universal, noninvasive and can be incorporated in any practice environment (SAMHSA-HRSA, 2018). The goal of this project was to identify and address gaps within a primary care SBIRT screening process, and increase successful screening.

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In this five-month SBIRT process evaluation project, the total percentage of successful screening increased from 72% in phase one to 93% after interventions in phase two. Given that SBIRT screening has been shown to decrease substance misuse, improve patient care, reduce health risks and the financial burden on our health care system, the success of this project in our facility, and community at large, is potentially limitless.

The largest area of initial improvement was provider documentation within the EMR. During the first phase of this project, providers were documenting correctly 76% of the time and during the second phase of this project improved to an 86% correct documentation rate. There was no noted variance within individual providers that would explain any variation in provider documentation. Another gap identified in phase one was the error rate of flagged patients. Upon further review, it was identified that only one secretary had undergone training for flagging, and in her absence, flagging was not conducted. Since then additional training for other staff has taken place.

The staff turnover was mostly notable in the second phase of this project, specifically with the correct scoring of the screener which decreased from 100% in the first phase to 83% during phase two. During this phase there were 3 out of 4 new flow staff. This negatively impacted the process by not having the screeners scored correctly, and reduced the number of secondary screeners (AUDIT/DAST) provided, which potentially resulted in missed opportunities for BI and referrals. The reality of staff turnover identified a gap in education for new hires and resulted in the addition of SBIRT training and education as part of all new staff orientation.

Based on these project findings and outcomes, ongoing surveillance of screening practices, will be of utmost importance for sustainability of SBIRT screening. The necessity of

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incorporating SBIRT education for new hires cannot be underestimated, especially given high personnel turnover rates in primary care. Also, given staff shortages, it is imperative that SBIRT screening remains a priority so that screening diligence remains high and that other documentation demands do not induce complacency.

### **Limitations**

There are some limitations to the generalizability of this study. First, it was conducted in a small rural outpatient clinic where most patients are well known to the staff and therefore are more willing to complete screeners. Second, the inclusion age was patients 18 years of age or older presenting to primary care. Therefore, this study is not generalizable to those under the age of 18 or other hospital settings. Our patient population is also very homogenous, Caucasian population, and may not be generalizable to more diverse populations.

### **Conclusions**

This project identified gaps and implemented interventions for sustainability of SBIRT screening in an outpatient practice. The implementation of interventions reduced error rates from 29.3% to 7% and increased successful screening from 72% to 93%. Ongoing staff training and education was shown to be key for the success of this screening process, and is crucial to ensure correct risk stratification of patients, which in turn determines appropriate patient care. The ability to offer screening, have it done correctly, and document correctly is of utmost importance in order to provide appropriate care for patients within a medical home model, as well as for data extraction and monitoring.

Implications for future studies include process evaluation of SBIRT in other health care settings, including pediatric populations. Longitudinal examination would allow for discernment

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of health risk improvement, if any, as well as any relation to social determinants. Other projects may also seek to include the beliefs or behaviors of providers and/or patients in regards to SBIRT screening.

The successful sustainability of SBIRT in any primary care practice will be multifactorial. There will need to buy-in from administration to support ongoing education, training, and financial support for staff who utilize these screening tools. Education and training will need to be incorporated as part of onboarding for new hires, as well as part of ongoing competency training for all staff. Ongoing process evaluation is recommended, as each facility site is unique and may display its own barriers and challenges that will need to be overcome for sustainable SBIRT screening.

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