

# Enhancing Equity in SBIRT Implementation: Progress in Substance and Alcohol Screening Among Adolescent Trauma Patients



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## Objectives

- **Increase SBIRT Protocol Compliance:** Improve the rates of Screening, Brief Intervention, and Referral to Treatment (SBIRT) assessments for adolescent trauma patients by integrating an SBIRT documentation tool within the Electronic Medical Record (EMR).
- **Reduce Disparities:** Address racial, language, and gender disparities in SBIRT assessments and social work consultations, ensuring equitable access to intervention and treatment options for all patients.
- **Evaluate Effectiveness:** Measure the impact of the integrated SBIRT documentation tool on screening rates, positive screens, and social work consultations, comparing outcomes before and after its implementation.

## Introduction

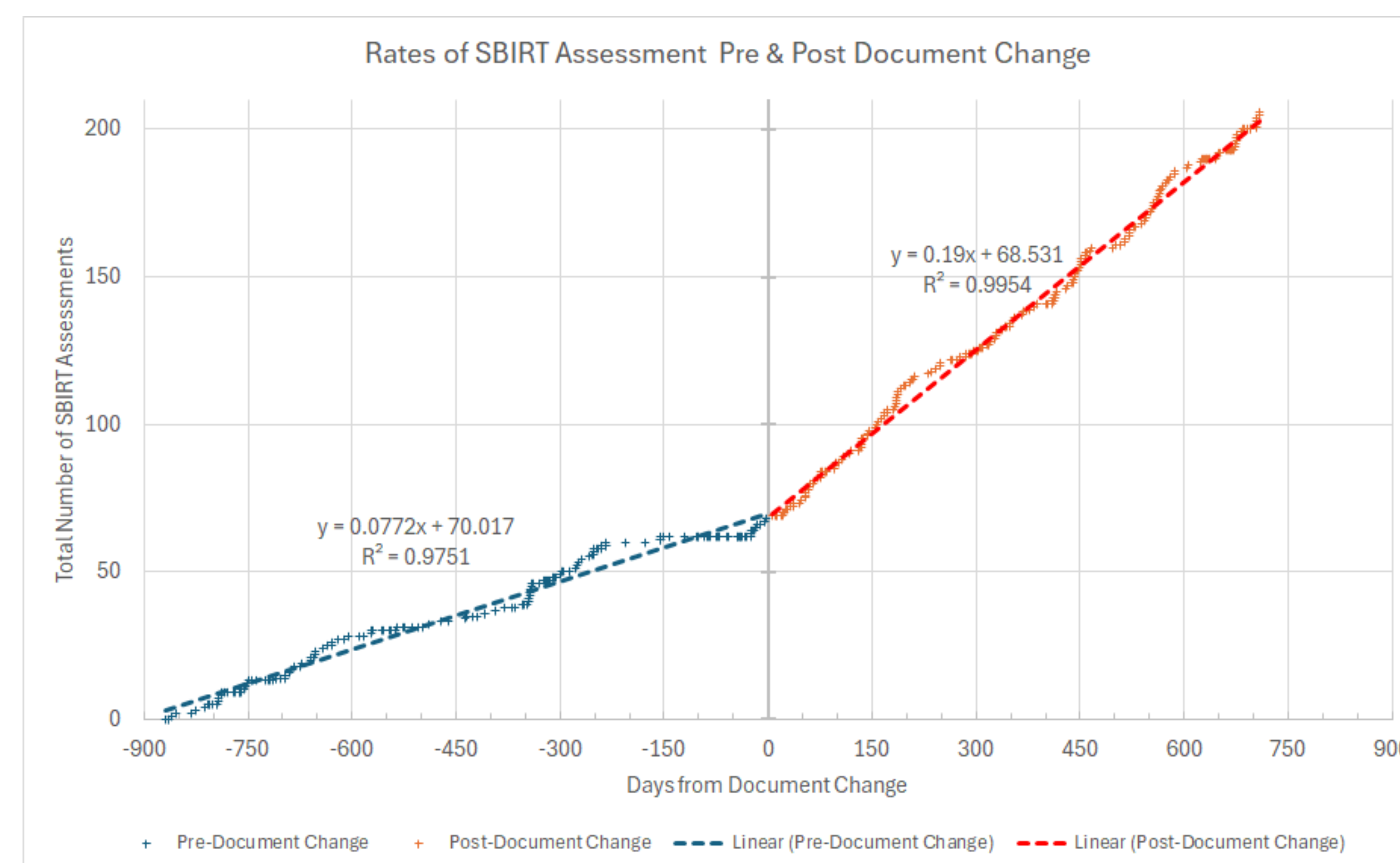
- Underage alcohol and drug use is a major public health issue, with 22.3% of youths aged 12-17 reporting lifetime alcohol use.
- SBIRT (Screening, Brief Intervention, and Referral to Treatment) reduces alcohol- and drug-related injuries and is required for trauma patients aged 12+ by the American College of Surgeons.
- Initial SBIRT implementation at UMass Memorial Children's Medical Center (2019) improved screening rates but revealed disparities based on race, language, and gender.
- In 2021, a new SBIRT documentation tool was integrated into the EMR to increase compliance and reduce disparities.

## Methods

- **Study Population:** Adolescents aged 12-18 admitted to UMass Memorial Children's Medical Center between 03/01/2019 and 06/30/2023 with trauma designations.
- **Data Collection:** Demographics (age, race, sex assigned at birth, primary language), SBIRT assessments using the S2BI tool, substance use details (alcohol, nicotine, marijuana, etc.), social work consults and drug screening data.
- **Intervention:** In July 2021, an SBIRT documentation tool was integrated into the EMR. Automated reminders and social work consults were triggered by positive S2BI screens.
- **Analysis:** Screening rates were compared pre- (03/01/2019 – 07/20/2021) and post-implementation (07/20/2021 – 06/30/2023). Stratified analysis and multivariate logistic regression were performed to identify predictors of SBIRT screening.

## Results

- **SBIRT Screening Rates:** Increased from 38.0% (pre-implementation) to 59.0% (post-implementation) ( $p < 0.001$ ) following integration of the S2BI tool into the EMR.
- **Positive SBIRT Screens:** Decreased from 36.8% to 17.4% ( $p = 0.002$ ) as overall screening rates increased.
- **Social Work Consults:** 83.7% of patients with a positive SBIRT screen received a social work consultation.
- **Demographic Disparities:** No significant differences in SBIRT screening rates were observed by race, ethnicity, sex assigned at birth, or primary language post-intervention.
- **Predictive Factors:** The new documentation method was the only significant predictor of increased SBIRT screening (OR = 2.38, 95% CI [1.57 – 3.62]); longer hospital stays slightly decreased odds of screening.



**Figure 1:** Graph demonstrating that the rate of SBIRT assessment increased after implementing S2BI in the new document type ( $m = 0.0772$ ,  $R = 0.987$  pre-implementation and  $m = 0.19$ ,  $R = 0.998$  post-implementation)

**Table 1: Overall and Pre/Post Documentation Change Cohorts**

	Pre-implementation		Post-implementation		p-value
	n	%	n	%	
<b>Sex assigned at birth</b>					
Male	129	72.1	164	70.1	0.66
Female	50	27.9	70	29.9	-
<b>Race</b>					
White	137	76.5	171	73.9	0.86
Black	8	4.5	9	3.9	-
Asian	4	2.2	6	2.6	-
Multiracial	3	1.7	7	3.0	-
Unknown	27	15.1	40	17.2	-
<b>Ethnicity</b>					
Hispanic or Latino	36	20.1	48	20.5	0.72
Non-Hispanic or Latino	140	78.2	183	78.2	-
Unknown	3	1.7	3	1.3	-
<b>Primary Language</b>					
English	169	94.4	213	91.0	0.5
Non-English	10	5.6	21	9.0	-
<b>Screening and Consultations</b>					
SBIRT Administered	68	38.0	138	59.0	<0.001
Positive SBIRT	25	36.8	24	17.4	0.002
Consult to Psych or Social Work	65	36.3	73	31.2	0.27
Seen by Social Work	129	72.1	140	59.8	0.01

**Table 2: Multivariate Logistic Regression for Odds of Undergoing SBIRT Assessment**

	Odds Ratio	95% CI	p-value
<b>Sex assigned at birth (ref: Female)</b>			
Male	1.04	0.66 - 1.64	0.876
<b>Race (ref: White)</b>			
Black	1.94	0.66 - 5.74	0.231
Asian	0.57	0.15 - 2.25	0.425
Multiracial	0.72	0.19 - 2.81	0.639
Unknown/Other	1.61	0.74 - 3.48	0.226
<b>Ethnicity (ref: non-Hispanic or Latino)</b>			
Hispanic or Latino	0.55	0.28 - 1.09	0.086
Unknown	0.12	0.01 - 1.18	0.069
<b>Primary Language (ref: non-English speakers)</b>			
English	0.57	0.22 - 1.45	0.236
<b>Screening and Consultations</b>			
Post-Implementation Screening	2.38	1.57 - 3.62	0
Consultation Obtained	1.58	0.94 - 2.66	0.081
Seen by Social Work	1.31	0.81 - 2.12	0.267
Length of Stay	0.92	0.87 - 0.97	0.004

## Conclusions

- The integration of the SBIRT documentation tool within the EMR significantly improved screening rates for adolescent trauma patients.
- While the proportion of positive SBIRT screens decreased, this is likely a reflection of more comprehensive screening across the population, reflecting a more accurate representation of substance use among adolescents.
- 83.7% of patients with positive screens received social work consultations, and disparities based on race, language, and gender were no longer significant, suggesting improved equity in care delivery.
- Future efforts should focus on addressing the slight reduction in SBIRT assessments with longer hospital stays, while exploring additional strategies to further enhance compliance and long-term impacts of early substance use interventions in adolescents.

## References

1. Center for Behavioral Health Statistics and Quality. (2023). *Results from the 2022 National Survey on Drug Use and Health: Detailed tables*. Substance Abuse and Mental Health Services Administration. <https://www.samhsa.gov/data/report/2022-nsduh-detailed-tables>
2. Barata IA, Shandro JR, Montgomery M, Polansky R, Sachs CJ, Duber HC, Weaver LM, Heins A, Owen HS, Josephson EB, Macias-Konstantopoulos W. Effectiveness of SBIRT for Alcohol Use Disorders in the Emergency Department: A Systematic Review. *West J Emerg Med*. 2017 Oct;18(6):1143-1152. doi: 10.5811/westjem.2017.7.34373. Epub 2017 Sep 21. PMID: 29085549; PMCID: PMC5654886.
3. Roubil JG, Hazeltine MD, Bludevich BM, Aidlen JT, Pustis N, Ferrante C, Hirsh MP, Cleary MA. Assessing screening, brief intervention, and referral to treatment (SBIRT) compliance and disparities for pediatric inpatients at a tertiary care facility. *J Pediatr Surg*. 2022 Jan;57(1):111-116. doi: 10.1016/j.jpedsurg.2021.09.048. Epub 2021 Oct 5. Erratum in: *J Pediatr Surg*. 2022 Apr 1; PMID: 34740443.
4. Mello MJ, Becker SJ, Bromberg J, Baird J, Zonfrillo MR, Spirito A. Implementing Alcohol Misuse SBIRT in a National Cohort of Pediatric Trauma Centers—a type III hybrid effectiveness-implementation trial. *Implement Sci*. 2018 Feb 22;13(1):35. doi: 10.1186/s13012-018-0725-x. PMID: 29471849; PMCID: PMC5824578.
5. Mello MJ, Becker SJ, Spirito A, Bromberg JR, Wills H, Barczyk A, Lee L, Pruitt C, Ebel BE, Zonfrillo MR, Nimaja E, Scott K, Kiragu A, Nasr IW, Aidlen JT, Maxson RT, Baird J. Screening Adolescent Trauma Patients for Substance Use at 10 Pediatric Trauma Centers. *J Trauma Nurs*. 2020 Nov/Dec;27(6):313-318. doi: 10.1097/JTN.0000000000000537. PMID: 33156244; PMCID: PMC7682252.