



# Identifying Substance Use and Mental Health Disorders Using an SBIRT Model

## Washington State’s Experience

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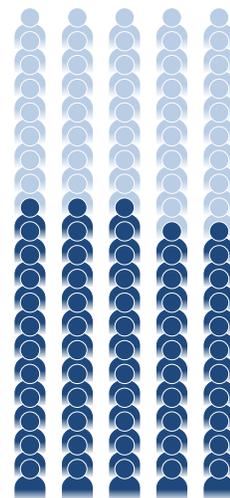
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**S**CREENING, BRIEF INTERVENTION, AND REFERRAL TO TREATMENT (SBIRT) is an evidence-based, universal public health approach used in a many healthcare settings to identify, prevent, and reduce substance use disorders (SUDs) (SAMHSA, 2015). The Washington State Department of Social and Health Services (DSHS) received a five-year federal grant to implement SBIRT in select health care settings from 2011 to 2016.<sup>1</sup> In the SBIRT model, adult patients complete an annual screen that assesses substance use. Individuals engaging in unhealthy substance use<sup>2</sup> (at risk) receive a brief intervention (BI) to address their substance use, and in some cases, a referral to specialty treatment. In addition to screening for substance use, the Washington SBIRT Primary Care Integration (WASBIRT-PCI) project also screened at risk patients for depression and anxiety. During the grant period, WASBIRT-PCI successfully screened 75,635 unique patients, 31 percent of whom were enrolled in Medicaid. This report describes the prevalence of at risk substance use and mental health disorders among the Medicaid and non-Medicaid patients screened under WASBIRT-PCI.

### Key Findings

- About 11 percent of patients screened were at risk of adverse health consequences due to substance use.
- Medicaid patients were twice as likely as non-Medicaid patients to be at risk of adverse health consequences due to their substance use.
- Among patients with risky to severe substance use that completed standard mental health questionnaires, 46 percent scored in the moderate-to-severe ranges for depression or anxiety. The prevalence increased with severity of substance use.
- Compared to non-Medicaid patients with similar substance use, Medicaid patients with risky to severe substance use were nearly twice as likely to score in the moderate-to-severe ranges for depression or anxiety.
- About 18 percent of patients with risky to severe substance use reported contemplating suicide or self-harm. Self-harm and suicidal ideation was higher for Medicaid patients and increased with substance use severity.

**58%** of the Medicaid Patients with At Risk Substance Use have Mental Health Conditions



<sup>1</sup> The federal grant was funded through the Substance Abuse and Mental Health Services Administration (SAMHSA).

<sup>2</sup> Unhealthy substance use is engaging in substance use behavior that increases the risk for adverse health and social outcomes, such as heart disease, cancers, hypertension, depression, car accidents or domestic violence. Unhealthy alcohol use is defined as exceeding 14 drinks in a week or more than 4 drinks in one sitting for men 18-65; or exceeding 7 drinks in a week or more than 3 drinks in one sitting for women of all ages and for men over 65. Any drug use or prescription drug use not as prescribed is considered unhealthy.

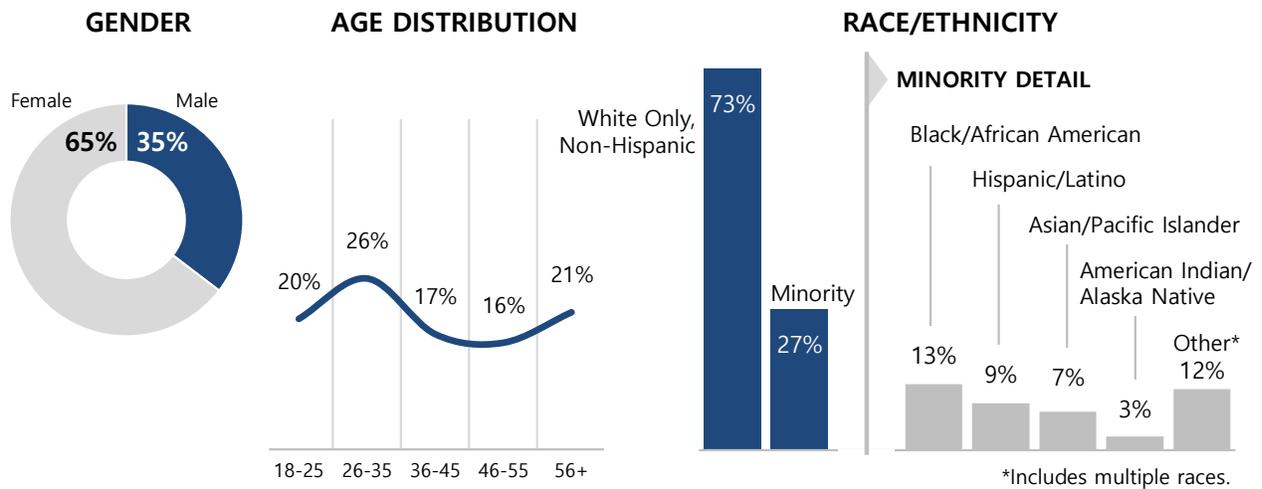
# SBIRT Participants

## Demographics

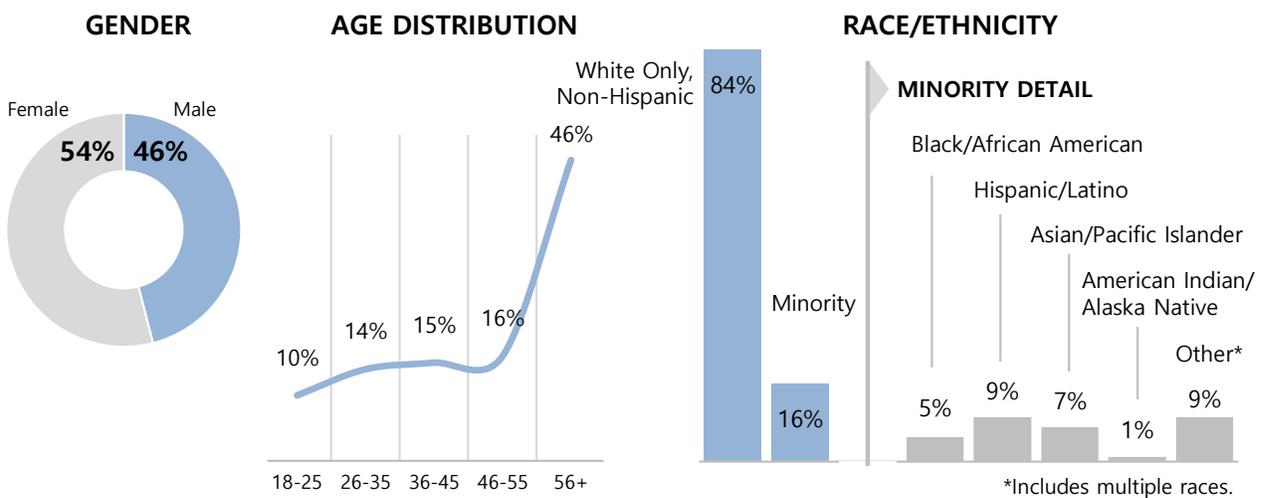
Nineteen facilities in Clallam, Cowlitz, King, Thurston and Whitman counties participated in WASBIRT-PCI. There were 16 primary care clinics, two emergency departments and one community mental health clinic. A total of 82,946 unique patients were screened over the five-year grant, and of those, 75,635 successfully completed all substance use screening protocols (23,580 Medicaid patients and 52,055 non-Medicaid patients). There were significantly more females screened in the Medicaid population (65 percent) compared to the non-Medicaid population (54 percent) and the population was significantly younger (mean age 41 years and 52 years, respectively).<sup>3</sup> The Medicaid population was also significantly more racially and ethnically diverse than the non-Medicaid population (Table 1, Figure 1).

FIGURE 1.  
WASBIRT-PCI Patient Demographics

### Medicaid Patients, TOTAL = 23,580



### Non-Medicaid Patients, TOTAL = 52,055



<sup>3</sup> Statistical significance determined by t-test with  $p < .05$

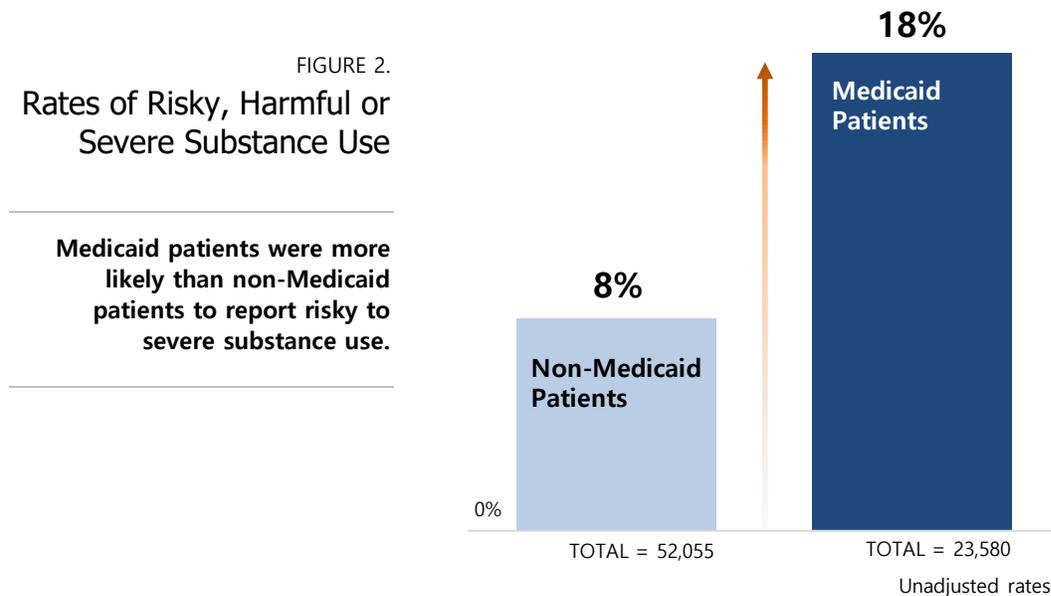
## Substance Use Risk Severity

All WASBIRT-PCI patients aged 18 or older received a short prescreen asking about binge drinking and illicit (or recreational) drug use<sup>4</sup> in the past year. Patients that reported binge drinking or drug use received lengthier full screens—the Alcohol Use Disorder Identification Test (AUDIT-10) and Drug Abuse Screening Test (DAST-10)—respectively. These screens are used to assign a substance use risk severity score, which are stratified into four categories (zones) of risk: 1) abstinent/low risk, 2) risky, 3) harmful, and 4) severe.<sup>5</sup> The higher the risk score, the more likely the patient is experiencing negative health or social consequences associated with their substance use. In the SBIRT model, patients scoring in the risky, harmful, or severe zones are indicated for a brief intervention; patients scoring in the harmful or severe zones should also be referred to specialized treatment. A patient’s substance use risk severity was based on the full screen outcome with the highest score.

The vast majority (67,059 patients or 89 percent) of patients screened in WASBIRT-PCI were in the abstinent/low risk zone and 8,576 patients (11 percent) scored in the risky, harmful or severe zones (Table 1). Males, while only 43 percent of the population screened, composed a larger share (58 percent) of those scoring in the risky, harmful, or severe zones. Nearly one in four (23 percent) American Indian or Alaskan Natives were engaging in risky to severe substance use. Patients with at risk substance use also tended to be younger; the average age for WASBIRT-PCI patients was 49 years, while patients scoring in risky or higher ranges averaged 39 years old.

Medicaid patients had significantly higher substance use risk severity than the non-Medicaid patients. Eight percent of the non-Medicaid patients scored in the risky, harmful or severe zones compared to 18 percent of the Medicaid patients (Figure 2). After adjusting for age and gender, Medicaid patients were two times more likely to screen into risky to severe substance use zones than non-Medicaid patients.<sup>6</sup>

FIGURE 2.  
Rates of Risky, Harmful or Severe Substance Use



<sup>4</sup> Washington State legalized recreational marijuana use during grant implementation requiring revisions to the drug prescreen to include the term “recreational” drugs. For the purposes of this report, “drug use” includes illicit drugs or recreational marijuana.

<sup>5</sup> The following scoring rubric was applied to determine risk zones: Abstinent/Low risk—AUDIT = 0-6 for all women and men over 65 or AUDIT = 0-7 for men 18-65 years old or DAST = 0; Risky—AUDIT = 7-15 for women and men over 65 or AUDIT = 8-15 for men 18-65 years old or DAST = 1-2; Harmful—AUDIT = 16-19 or DAST = 3-5; Severe—AUDIT = 20-40 or DAST = 6-10.

<sup>6</sup> Based on a logistic regression controlling for age and gender (n = 75,583; roc = 0.707; 95% Wald Confidence Limits of Odds Ratio: 1.938-2.134; Medicaid coefficient point estimate 2.034; P-value < .0001).

TABLE 1.

## WASBIRT-PCI Demographics by Substance Use Risk Severity

	WASBIRT-PCI Patients Screened		Patients in the Abstinent or Low Risk Zone		Patients in the Risky, Harmful, or Severe Zones	
	NUMBER	PERCENT	NUMBER	PERCENT	NUMBER	PERCENT
<b>TOTAL POPULATION</b> Unduplicated	75,635	100.0%	67,059	100.0%	8,576	100.0%
<b>MEDICAID STATUS</b>						
Medicaid	23,580	31.2%	19,408	28.9%	4,172	48.6%
Non-Medicaid	52,055	68.8%	47,651	71.1%	4,404	51.3%
<b>GENDER</b>						
Male	32,213	42.6%	27,223	40.6%	4,990	58.3%
Female	43,422	57.4%	39,836	59.4%	3,586	41.7%
Gender Missing	52	<1%	30	<1%	22	<1%
<b>RACE/ETHNICITY</b>						
American Indian/Alaska Native	989	1.5%	763	1.3%	226	2.8%
Asian/Pacific Islander	4,605	6.8%	4,281	7.2%	324	4.1%
African American	5,255	7.8%	4,476	7.5%	779	9.8%
White, non-Hispanic	54,110	80.0%	47,615	79.8%	6,495	81.6%
Other	7,547	10.0%	6,797	11.4%	750	8.7%
Race Missing	8,037	10.6%	7,423	11.1%	614	7.2%
Hispanic	6,479	8.8%	6,060	9.3%	419	5.1%
Hispanic Missing	1,994	2.6%	1,701	2.5%	293	3.4%
<b>AGE</b>						
Mean Age	48.8 years		50.0 years		39.1 years	
18-25	9,225	12.6%	7,222	11.2%	2,003	23.4%
26-35	12,695	17.4%	10,538	16.4%	2,157	25.2%
36-45	11,177	15.3%	9,675	15.0%	1,502	17.5%
46-55	11,647	16.0%	10,176	15.8%	1,471	17.2%
56+	28,224	38.7%	26,781	41.6%	1,443	16.8%
Age Missing	31	<1%	31	<1%	0	0%

## Substance Use Risk and Mental Health

Substance use and mental health disorder comorbidity is common (Lucenko, Mancuso, Felver, Yakup, 2010). In recognition of this, WASBIRT-PCI clinics were instructed to screen all patients with risky to severe substance use for mental health disorders using the Patient Health Questionnaire 9 (PHQ9) for depression and the Generalized Anxiety Disorder 7 (GAD7) for anxiety.

Nearly 5,900 patients (3,071 Medicaid and 2,811 non-Medicaid) in the risky to severe substance use zones were screened for depression and anxiety.<sup>7</sup> Of those, 58 percent of Medicaid and 32 percent of non-Medicaid patients scored in the moderate-to-severe ranges for depression or anxiety (Table 2, Figure 3).<sup>8</sup> Medicaid patients in the risky to severe substance use zones were 1.8 times more likely to be experiencing either mental health condition compared to the non-Medicaid patients (2.2, adjusting for age, gender, and substance use severity).<sup>9</sup>

<sup>7</sup> Total screened for mental health among risky or higher substance use risk severity: Anxiety = 5,610; Depression = 5,882; Anxiety or Depression = 5,610; and Suicide risk = 5,579.

<sup>8</sup> A score of 10 or higher on either the PHQ9 or GAD7 indicates moderate to severe depression or anxiety.

<sup>9</sup> Based on a logistic regression controlling for age, gender and substance use severity (n=5,590; roc=.738; 95% Wald Confidence Limits of Odds Ratio: 1.914-2.429; Medicaid coefficient point estimate 2.156; P-value < .0001).

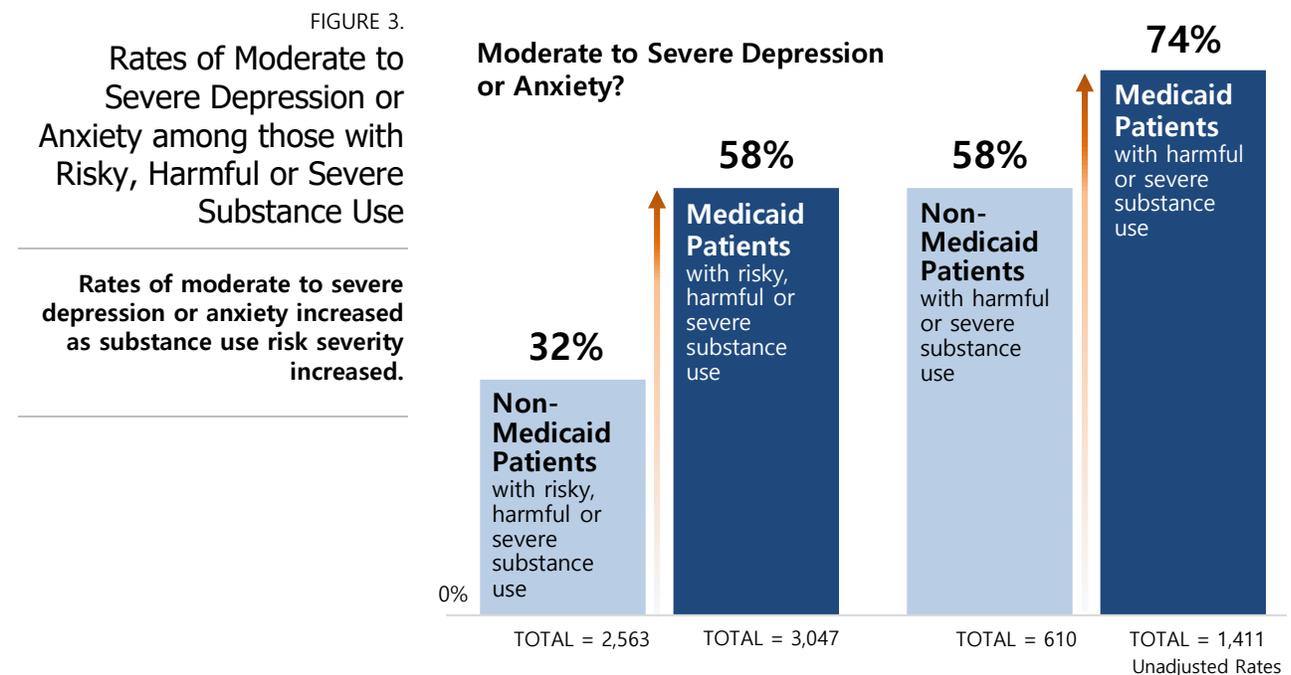
TABLE 2.

**Mental Health Screening Results for Patients with Risky, Harmful or Severe Substance Use Risk Severity: Moderate-to-Severe Depression, Anxiety and Suicidal Ideation**

Substance Use Risk Severity	Medicaid Coverage Status	Patients Scoring in the Moderate-to-Severe Range for . . .			
		Anxiety	Depression	Anxiety or Depression	Thoughts of Self Harm or Suicide
		PERCENT	PERCENT	PERCENT	PERCENT
<b>All: Risky, Harmful or Severe</b>	Total	37.1%	36.2%	46.1%	18.3%
	Medicaid	48.2%	48.1%	58.2%	23.9%
	Non-Medicaid	23.9%	23.4%	31.7%	11.7%
<b>Risky Only</b>	Total	25.4%	23.9%	33.2%	11.7%
	Medicaid	35.3%	33.9%	44.7%	15.8%
	Non-Medicaid	17.1%	16.3%	23.5%	8.3%
<b>Harmful or Severe Only</b>	Total	58.0%	59.9%	69.0%	30.3%
	Medicaid	63.3%	65.3%	73.8%	33.6%
	Non-Medicaid	45.7%	48.1%	58.0%	22.7%

**Harmful or Severe Substance Use Risk and Mental Health**

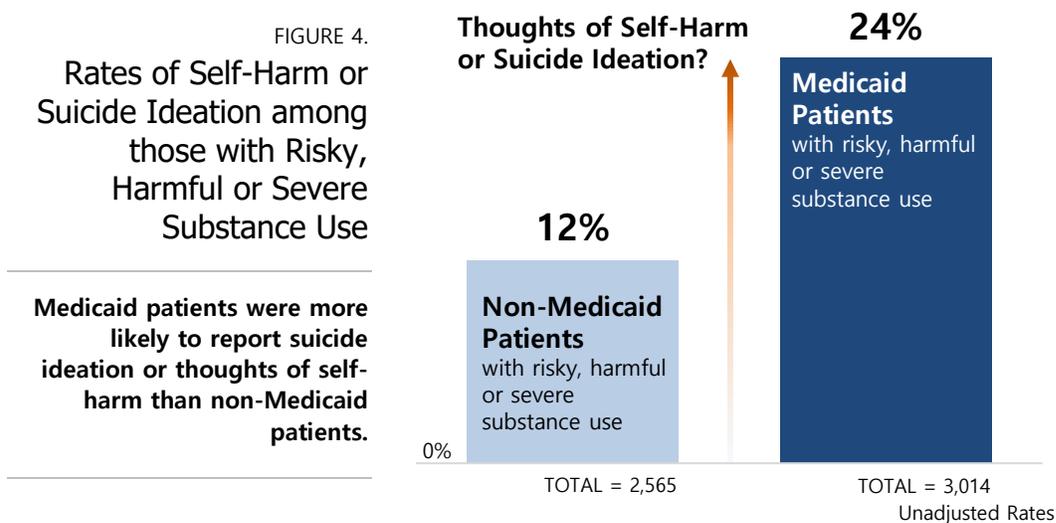
At higher levels of substance use risk severity (harmful to severe) patients were more likely to score in the moderate-to-severe ranges for depression and anxiety. Over two-thirds (69 percent) of higher-risk patients scored as having depression or anxiety (Table 2). The higher substance use risk severity Medicaid patients were 1.3 times (1.8, adjusted for age, gender, and substance use severity)<sup>10</sup> more likely to score in the moderate-to-severe ranges for depression or anxiety compared to the non-Medicaid patients (Table 2, Figure 3).



<sup>10</sup> Based on a logistic regression controlling for age, gender and substance use severity (n = 2,011; roc = 0.62; 95% Wald Confidence Limits of Odds Ratio: 1.470-2.215; Medicaid coefficient point estimate 1.805; P-value < .0001).

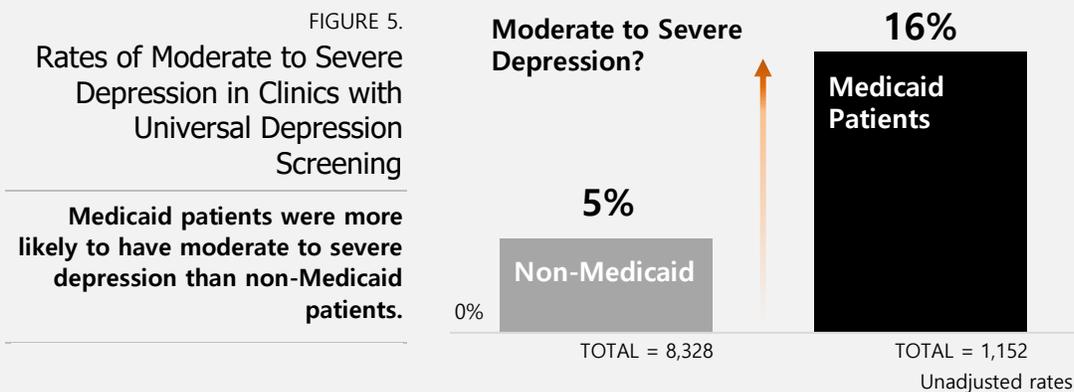
## Self-Harm or Suicide Ideation

The PHQ9 questionnaire asks a question about self-harm and suicide ideation. Of those screened, 18.3 percent reported thinking “they would be better off dead” or of injuring themselves in the prior two weeks (Table 2). Medicaid patients in the risky to severe substance use zones were twice as likely (1.8, adjusted for age, gender, and substance use severity)<sup>11</sup> as likely to have had suicidal ideation or thoughts of self-harm than non-Medicaid patients (Figure 4).



## Universal Mental Health Screening

While not part of the WASBIRT-PCI protocol, two participating clinics routinely screened all patients—not just those in the risky to severe substance use zones—for depression. This provided a convenient sample with which to estimate the prevalence of depression in those clinic-wide patient populations. The two clinics conducted universal depression screening on 9,480 adult patients. Of those screened, 6.4 percent scored in the moderate-to-severe ranges for depression, which is consistent with national estimates.<sup>12</sup> Medicaid patients were three times more likely (2.6, after adjusting for age, gender, and substance use risk severity)<sup>13</sup> to score in the moderate to severe ranges for depression than non-Medicaid patients (see adjacent figure).



<sup>11</sup> Based on a logistic regression controlling for age, gender and substance use severity (n = 5,559; roc = 0.688; 95% Wald Confidence Limits of Odds Ratio: 1.547-2.112; Medicaid coefficient point estimate 1.807; P-value < .0001).

<sup>12</sup> According to the National Institute of Health, in 2015 approximately 6.7% of adults 18 or older in the US had at least one depressive episode in the past year. Available from [www.nimh.nih.gov/health/statistics/prevalence/major-depression-among-adults.shtml](http://www.nimh.nih.gov/health/statistics/prevalence/major-depression-among-adults.shtml).

<sup>13</sup> Based on a logistic regression controlling for age, gender and substance use risk (n = 9,480; roc = 0.706; 95% Wald Confidence Limits for Odds Ratio: 2.108-3.163; Medicaid coefficient point estimate 2.582; P-value < .0001).

## Summary

Substance use and mental health disorders impact millions of Americans, resulting in a lower quality of life and increased costs related to healthcare, criminal justice and lost productivity. In 2014, an estimated 18 percent of Americans had a mental health disorder and eight percent had a substance use disorder (Hedden, Kennet, Lipari, Medley, Tice, 2015). Among Medicaid recipients, rates of mental health disorders and substance misuse are higher, 35 percent and 12 percent, respectively (Kaiser Family Foundation, 2012; Centers for Medicare and Medicaid Services, 2017).

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**This analysis demonstrates that the mental health and substance use screening protocols implemented by clinics conducting SBIRT identified similar prevalence patterns described in the literature. SBIRT can be an efficient means by which to identify patients who may benefit from integrated behavioral health services and treatment.**

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SBIRT screening revealed that Medicaid patients are at significantly greater risk for health problems associated with substance use, and for co-occurring mental health disorders. In summary:

- 11 percent of all patients screened reported risky to severe substance use. Males, American Indians and Alaskan Natives, and younger patients were more likely to report risky levels of substance use.
- Medicaid patients were twice as likely as non-Medicaid patients to report risky to severe substance use as non-Medicaid patients.
- SBIRT screening that incorporated mental health questionnaires revealed that nearly half (46 percent) of patients with at risk substance use had moderate-to-severe depression or anxiety. The prevalence of anxiety and depression was positively correlated with the severity of substance use risk.
- Among risky to severe substance users, Medicaid patients were nearly twice as likely as non-Medicaid patients to score in the moderate-to-severe ranges for depression or anxiety. Three quarters of Medicaid patients with harmful or severe substance use risk had moderate to severe depression or anxiety.
- About 18 percent of patients with risky to severe substance use reported contemplating suicide or self-harm. The prevalence of suicidal ideation was significantly higher for Medicaid patients compared to non-Medicaid patients and increased with the severity of substance use risk.

SBIRT is designed primarily to identify patients at risk for adverse health and social consequences associated with their substance use. The screening component of SBIRT is an efficient way to identify patients with at risk substance use, with each full screen taking approximately three to five minutes to administer and score (Babor, Higgins-Biddle, Saunders, Monteiro, 2001; Yudko, Lozhkina, Fouts, 2006). Utilizing prescreens, having patients self-administer the screens, and automation with electronic health records to score the instruments could reduce the administration time (SAMHSA, 2013).

The WASBIRT-PCI implementation of SBIRT demonstrated that routine mental health screening using standard diagnostic questionnaires (PHQ9 and GAD7) can be efficiently incorporated into the SBIRT workflow, identifying patients for whom mental health treatment may play a critical role in their overall health.

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## TECHNICAL NOTES

### STUDY POPULATION

This report focuses on patients who were screened under the WASBIRT-PCI grant for substance use and mental health disorder in primary care, emergency department or community mental health settings. Substance use screening was conducted universally at medical facilities among patients that were 18 and older between January 2012 and August 2016. To be included in the study population patients had to complete the SBIRT screening protocols for substance use. Screening outcomes described in this report are based on a patient's first SBIRT encounter.

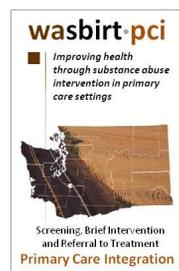
### Medicaid Status:

- 1) *WASBIRT-PCI Medicaid patients* (n = 23,580) included all patients that had at least one month of Medicaid coverage in the twenty four months prior to the SBIRT encounter. Also included those with dual Medicaid-Medicare coverage.
- 2) *WASBIRT-PCI Non-Medicaid patients* (n = 52,055) included all patients without any months of Medicaid coverage in the twenty four months prior to the SBIRT encounter. These patients may have had private medical coverage or no coverage.

### DATA SOURCES AND MEASURES

- **Behavioral Health and Risk Indicators:** Data on depression and anxiety and substance use risk severity are based on screens conducted by staff at clinics participating in the WASBIRT-PCI project. The screening results (raw scores) along with other patient data and identifiers were regularly reported to RDA via secure file transfer.
- **Medical coverage:** Medicaid coverage status was determined by linking the patient WASBIRT-PCI records with the Washington State Department of Social and Health Service's [Integrated Client Database \(ICDB\)](#). The ICDB includes indicators of Medicaid coverage in any given month.

The Washington State Institutional Review Board (IRB) determined that evaluation activities supporting WASBIRT-PCI were program evaluation and therefore exempt from IRB review.



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