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State of Hawaii Validation Report on the STATIC-99, STABLE-2007, and ACUTE Sex Offender Risk Assessments

Introduction

This report presents an analysis of Hawaii's sex offender risk assessment instruments for Fiscal Years 2008-2015. The STATIC-99, STABLE-2007, and ACUTE-2007 instruments are nationally-validated actuarial risk assessments used to predict sexual/violent and general recidivism among adult offenders. The purpose of this study is to validate the sex offender risk instruments and the Consolidated Sex Offender Risk Level (CSORL) in the State of Hawaii. Community supervision officers use all three assessments to identify offenders that have high potential to reoffend, or have problems associated with general and sexual self-regulation. This is the second such study report submitted to the Interagency Council on Intermediate Sanctions (ICIS); the first report was published in 2013 and can be located on the ICIS web site.¹

The three sex offender risk assessment instruments (created by A. Harris, R. Hanson, and D. Thornton; 2003) are utilized in Hawaii for risk screening, treatment classification, community supervision, and case planning. The STATIC-99 is a ten-item scale of criminal history factors related to Sex Offense recidivism. It examines the short-term risk pattern of convicted sex offenders who are at varying levels of risk for sexual and violent recidivism. The STABLE-2007 is a 13-item instrument that measures dynamic dimensions of sexual deviancy. It measures changing risk factors associated with sexual and violent recidivism, such as poor sexual self-regulation, relationship deficits, and deviant sexual preoccupation. The STABLE-2007 helps supervision officers identify appropriate sex offender intervention modalities, such as Cognitive Behavior Treatment (CBT), Intensive Outpatient Treatment (IOP), or aversion therapy. Sex offenders are initially assessed using the STATIC-99 within 60-days from the onset of supervision, and are annually reassessed with the STABLE-2007. The ACUTE-2007 is a seven-item instrument that assesses for both Sexual/Violent recidivism risk (four items) and General recidivism risk (three items), and is useful for the identification of the offender's current risk level and treatment needs. It measures rapidly changing factors, and transient conditions that predict imminent sexual re-offending. Officers use the ACUTE-2007 to assess offenders who either violate treatment conditions, or currently exhibit risky sexual behaviors and deviant thought patterns that need immediate attention.

The Sex Offender Management Team (SOMT) developed procedures that align sex offenders into a risk priority matrix made up of risk ranges established from the STATIC-99 and STABLE-2007². Named the Combined Sex Offender Risk Level (CSORL), its primary purpose is to determine community supervision levels for sex offenders. Additionally, SOMT has developed a Sex Offender Case Plan Matrix of consolidated risk levels from the CSORL and the Level of Services Inventory-Revised (LSI-R). The LSI-R helps to identify offenders' criminogenic risks and needs, and when compared to the CSORL, provides the basis for individualized case planning and in the identification of treatment needs.

¹ *Hawaii State Validation Report on the STATIC-99 and STABLE-2000 Sex Offender Risk Assessments*
<http://www.hawaii.gov/icis/documents>

² Unpublished Hawaii Department of Public Safety Document, *Using Validated Assessments to Guide Supervision: Partnerships for Sustainability*, Gillespie, L. & Anderson, D. September 2008.

This study analyzed 698 STATIC-99s administered to adult felony probationers and parolees from 2008 through 2015. A recidivism analysis was the primary method used to evaluate the accuracy and predictive validity of the STATIC-99, STABLE-2007, and ACUTE-2007. For the purpose of this study, recidivism is defined as a new Sex Offense and/or Non-Sex Offense, where convicted sex offenders are monitored for recidivism over a three-year period beginning with the supervision start date. Criminal history records from Hawaii's Criminal Justice Information System (CJIS) were analyzed to track the study population's recidivism events.

This report includes the following subsections:

1. Demographic profile of offenders assessed with the STATIC-99, STABLE-2007, and ACUTE-2007, such as gender, age, ethnicity, marital status, and judicial unit;
2. Descriptive statistical analyses of offenders who were administered the STATIC-99, STABLE-2007, and ACUTE-2007, including frequency distributions, and cross-tabulations of selected variables;
3. STATIC-99, STABLE-2007, and ACUTE-2007 recidivism analyses; and
4. Validation analyses of the STATIC-99, STABLE-2000, and ACUTE-2007 instruments.
5. Summary of Findings
6. Conclusion
7. Appendices

1. Demographics

Table 1: Selected Demographic Characteristics of Offenders who received the STATIC-99, STABLE-2007, and ACUTE-2007

	STATIC-99		STABLE-2007		ACUTE-2007	
	Frequency	Pct.	Frequency	Pct.	Frequency	Pct.
Gender						
Male	698	100.0%	436	99.3%	471	99.3%
Female	*Not Valid		2	0.7%	1	0.7%
Age Range						
<20 years old	3	0.4%	3	0.7%	3	0.6%
20 – 29 years old	29	4.2%	20	4.6%	22	4.7%
30 – 39 years old	159	22.8%	94	21.5%	102	21.6%
40 – 49 years old	147	21.1%	86	19.6%	97	20.6%
50+ years	304	43.6%	203	46.3%	210	44.5%
Missing	56	8.0%	32	7.3%	38	8.1%
Ethnicity						
Hawn/Pt. Hawn	185	26.5%	117	26.7%	132	28.0%
Caucasian	125	17.9%	82	18.7%	84	17.8%
Filipino	116	16.6%	75	17.1%	78	16.5%
African American	42	6.0%	27	6.2%	32	6.8%
Japanese	33	4.7%	22	5.0%	25	5.3%
Samoan	26	3.7%	16	3.7%	16	3.4%
Hispanic	23	3.3%	13	3.0%	12	2.5%
Asian-Caucasian Mix	15	2.1%	11	2.5%	13	2.8%
All Others	133	19.1%	75	17.1%	80	16.9%
Marital Status						
Married	216	30.9%	131	29.9%	135	28.6%
Divorced	124	17.8%	83	18.9%	89	18.9%
Separated	26	3.7%	16	3.7%	14	3.0%
Widowed	12	1.7%	8	1.8%	8	1.7%
Single	320	45.8%	200	45.7%	226	47.9%

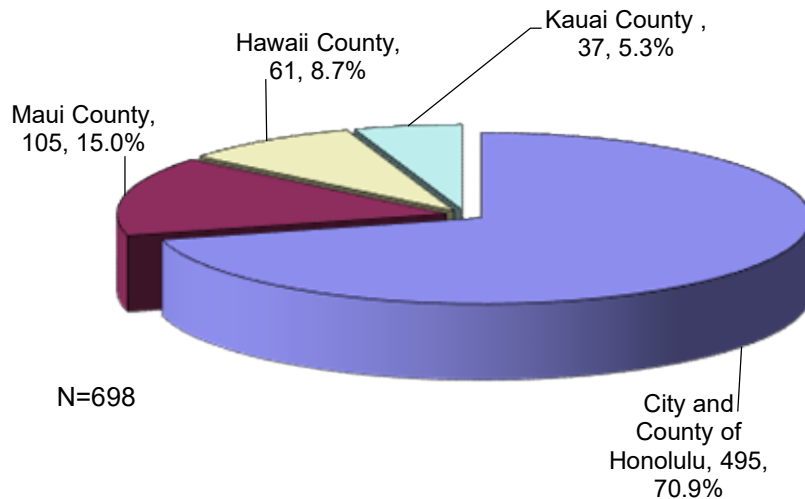
*The STATIC-99 is not nationally validated for female sex offenders.

Note: Table 1 excludes offenders for which no demographic data are available.

The demographic profile of sex offenders in Table 1 is predominantly male (99.3%), unmarried (69.1%), over 50 years old (43.6%), and of Hawaiian/part-Hawaiian, Caucasian, and Filipino (61.0%) descent.

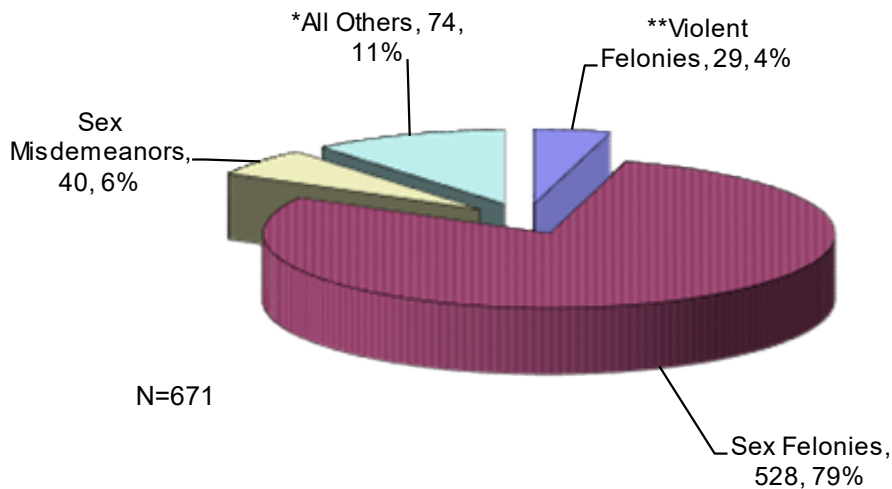
2. Descriptive Statistics

Figure 1: Offenders Administered the STATIC-99, by County of Residence



The majority of sentenced sex offenders reside in the City and County of Honolulu (71.1%).

Figure 2: Offenders Administered the STATIC-99, by Sentenced Offense



The majority of offenders who were administered the STATIC-99 were convicted of felony-level Sex Offenses (78.7%).

* All Others represent offenders convicted on non-violent felonies, such as robbery, larceny, criminal property damage, and drug-related felonies, etc.

** Violent felonies represent offenders who were sentenced for assault, murder, or abuse of a household member, etc.

Note: Violent felons and "All Other" offenders were administered the STATIC-99 due to their prior sex offense histories and/or unadjudicated sex offense charges, or when otherwise referred to the Sex Offender Unit by presentence investigation officers.

Table 2: STATIC-99, STABLE-2007, and ACUTE-2007 Mean Scores, by Risk Class

STATIC-99 (N=695)			STABLE-2007 (N=435)		
	Ave. Total Score	*Conf. Interval		Ave. Total Score	*Conf. Interval
	2.28	2.16-2.40		4.52	4.11-4.93
Risk Class	Cut-off scores	% Distrib.	Risk Class	Cut-off scores	% Distrib.
Surveillance	6-12	3.7%	High	12+	8.7%
High	4-5	17.8%	Medium	4-11	36.8%
Medium	2-3	42.3%			
Low	0-1	36.1%	Low	0-3	54.5%
Total		100.0%			
Cronbach's α	0.46, $p < .001$, c.i. (.40-.52)			0.83, $p < .001$, c.i. (.81-.86)	
Pearson's r	.201, $p < .001$ (2-tailed)				

ACUTE-2007 Sex/Violence Recidivism Risk Factors (N=470)			ACUTE-2007 General Recidivism Risk Factors (N=470)		
	Ave. Total Score	*Conf. Interval		Ave. Total Score	*Conf. Interval
	0.82	.70-.94		1.24	1.07-1.41
Risk Class	Cut-off scores	% Distrib.	Risk Class	Cut-off scores	% Distrib.
High	2+	18.3%	High	3+	15.7%
Medium	1	25.1%	Medium	1-2	37.4%
Low	0	56.6%	Low	0	46.8%
Cronbach's α	0.61, $p < .001$, c.i. (.54-.66)			0.71, $p < .001$, c.i. (.66-.74)	

*95% of the sex offenders assessed were within this scoring range.

Note: Cronbach α is an intraclass coefficient of inter-item correlations averaged across the rating instrument. Pearson's r is a correlation coefficient that measures the average strength of linear association between the STATIC-99 and STABLE-2007.

In Hawaii's criminal justice system, the STATIC-99 is used to assess static (unchanging) risk factors related to Sex Offense recidivism, while the STABLE-2007 is used to assess dynamic (evolving) sex offense risk factors. The ACUTE-2007 measures rapidly changing Sex/Violent and General risk factors.

In Table 2, the average scores for the STATIC-99 (2.28), STABLE-2007 (4.52), and ACUTE-2007 for Sex/Violent recidivists (.82) and General recidivists (1.24) are within the Low to Medium risk levels. The risk items in the STATIC-99, STABLE-2007, and ACUTE-2007 have statistically significant reliability, based on the Cronbach's α . Also, the total scores in the STATIC-99 and STABLE-2007 are significantly correlated (Pearson's r) to each other.

Sex offenders are within the Low-to-Medium Risk levels, based on the STATIC-99, STABLE-2007, and ACUTE-2007

Technical Notes: Measuring internal reliability in these instruments is important for validation purposes. Instrument reliability determines how well each instruments' question items are statistically correlated to each other (Cronbach's α). The instruments' correlations are important measures of internal consistency, as risk items within each instrument tend to associate (group) together. Pearson's r represents the strength and direction of relatedness between two risk instruments. If the correlation is zero, or very close to zero, there is no statistical relationship that ties the two instruments together. A correlation of +1.0 would show perfect association or relatedness between the two instruments.

The Sex Offender Management Team developed the Combined Sex Offender Risk Level (CSORL) that consolidates the risk levels from both the STATIC-99 and STABLE-2007 (see Table 3). The CSORL assists the officer in assessing an offender's sex behavior and risk for violent and sexual assault risk patterns as measured by static (criminal history) and dynamic (sexual impulses and self-regulation) dimensions. Its purpose is to establish community supervision intensity levels using risk ranges from both the STATIC-99 and STABLE-2007. Once the supervision level is determined by the CSORL, the officer sets the frequency of supervision (weekly or monthly supervision visits), based on pre-established contact standards. However, the officer, with the supervisor's approval, can temporarily override the CSORL, if there are substantial reasons for a change in risk management, and the offender exhibits behaviors that necessitate a change in supervision level.³ An override that extends longer than one year requires a STABLE-2007 reassessment.

Table 3: Hawaii Combined Sex Offender Risk Level Matrix

Combined Sex Offender Risk Levels (CSORL) Matrix

CSORL	CSORL (count)	CSORL (Pct.)	STATIC-99	STABLE-2007
Surveillance	1	0.2%	Surveillance (4)	High (3)
High	10	2.3%	Surveillance (4)	Medium (2)
High	5	1.2%	Surveillance (4)	Low (1)
High	11	2.6%	High (3)	High (3)
Medium	30	7.0%	High (3)	Medium (2)
Low	27	6.3%	High (3)	Low (1)
Medium	18	4.2%	Medium(2)	High (3)
Low	70	16.3%	Medium (2)	Medium (2)
	82	19.1%		Low (1)
	8	1.9%	Low (1)	High (3)
	49	11.4%		Medium (2)
	119	27.6%		Low (1)

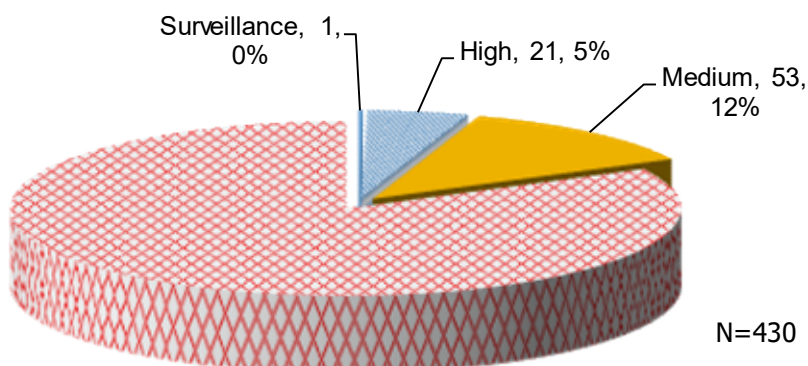
CSORL Risk Level (Pct.)	
0.2%	Surveillance (CSORL=7)
4.9%	High (CSORL=6)
12.4%	Medium(CSORL=5)
82.6%	Low (CSORL<5)

N=430

Note: The STATIC-99 and STABLE-2007 are assigned individual cut-off values (in parentheses) for each risk level presented in Table 3. The cut-off values from the STATIC-99 and STABLE-2007 risk levels are then totaled and assigned a CSORL score that represents a specific risk level. For example, an offender who has a combined CSORL cut-off score of (7) is placed at the Surveillance level (shaded in red color) and must be at High risk on both the STATIC-99 (score=4), and STABLE-2007 (score=3). On the other hand, an offender who has a Low to Medium score on the STATIC-99 (score= 1,2 or 3) and STABLE-2007 (score= 1,2 or 3) is classified at the Low CSORL risk level if their combined STATIC-99 and STABLE-2007 scores are less than five (CSORL<5).

³The Judiciary Adult Client Services Policies & Procedures Manual on the Supervision of Sex Offenders (Section VI.B) Supervision Level Override.

Figure 3: Hawaii Combined Sex Offender Risk Levels



82.6% of the sex offenders classified under the CSORL matrix are at the Low risk level.

Figure 3 consolidates the STATIC-99 and STABLE-2007 risk levels, as depicted in the CSORL matrix (Table 3). After combining the STATIC-99 and STABLE-2007, the Low risk offenders make up 82.6% of the sex offenders, followed by Medium risk offenders (12.4%). The High (4.9%) and Surveillance (0.2%) risk offenders make up the remainder of the offenders who received the STATIC-99 and STABLE-2007 assessments.

Table 4: Sex Offender Case Plan Matrix (CSORL and LSI-R)

		LSI-R Combined Risk Levels			
		High*	Medium	Low**	Total
CSORL Risk Category	Surveillance	1 (0.3%)	0 (0.0%)	0 (0.0%)	1 (0.3%)
	High	3 (0.7%)	5 (1.2%)	13 (3.1%)	21 (5.0%)
	Medium	9 (2.2%)	5 (1.2%)	38 (9.2%)	52 (12.6%)
	Low	13 (3.1%)	25 (6.1%)	301 (72.9%)	339 (82.1%)
	Total	26 (6.3%)	35 (8.5%)	352 (85.2%)	413 (100.0%)

10.7% of the sex offenders are at elevated risk for recidivism, and thus require case planning.

Note: High and Surveillance level offenders classified by the LSI-R and CSORL receive case plans.

*Combined Surveillance-High

**Combined Administrative-Low

Table 4 shows the proportion of offenders at various risk levels after combining risk classifications from both the LSI-R and CSORL. The data show that 44 (10.7%) out of the 413 sex offenders have high risk potential for Sex Offense or Non-Sex Offense recidivism (colored cells). The Sex Offender Case Plan Matrix helps to determine the number of criminogenic need areas required for case planning purposes, based on the CSORL and LSI-R risk levels. Sex offenders that are at the High-Surveillance risk levels on the CSORL and High or Medium risk on the LSI-R (blue shaded cell) require a case plan that addresses two targeted STABLE-2007 risk factors and one LSI-R risk area. High risk offenders on the LSI-R and Medium risk offenders on the CSORL (green shaded cell) require case plans on one targeted STABLE-2007 factor and two LSI-R risk areas. High risk offenders on the LSI-R and Low risk offenders on the CSORL (purple shaded cell) require three targeted LSI-R risk areas, while High-Surveillance risk offenders on the CSORL and Low risk offenders on the LSI-R (coral shaded cell) require three targeted STABLE-2007 factors.

3. Recidivism Analyses

Table 5: Sex Offense, Non-Sex Offense, and Recidivism Rates, by Risk Level

Sex Offender (SO) Risk Instruments											
STATIC-99 (N=549)				STABLE-2007 (N=377)				ACUTE-2007 (N=399)			
Sex Offense Recidivism											
Risk Class	N	Re-arrests	Recidivism Rate	Risk Class	N	Re-arrests	Recidivism Rate	Risk Class	N	Re-arrests	Recidivism Rate
Surveillance (6-12)	20	1	5.0%	High (12+)	31	2	6.5%	High (2-8)	66	3	4.5%
High (4-5)	93	2	2.2%	Medium (4-11)	132	2	1.5%	Medium (1)	102	1	1.0%
Medium (2-3)	220	6	2.7%	Low (0-3)	214	0	0.0%	Low (0)	231	1	0.4%
Low (0-1)	216	1	0.5%								
Total	549	10	1.8%	Total	377	4	1.1%	Total	399	5	1.3%
Statistical Significance		Not Significant				$\chi^2 = 11.13, p < .01$				$\chi^2 = 7.10, p < .05$	
Non-Sex Offense Recidivism											
Risk Class	N	Re-arrests	Recidivism Rate	Risk Class	N	Re-arrests	Recidivism Rate	Risk Class	N	Re-arrests	Recidivism Rate
Surveillance (6-12)	20	9	45.0%	High (12+)	31	19	61.3%	High (3-12)	58	25	43.1%
High (4-5)	93	35	37.6%	Medium (4-11)	132	30	22.7%	Medium (1-2)	152	33	21.7%
Medium (2-3)	220	54	24.5%	Low (0-3)	214	38	17.8%	Low (0)	189	35	18.5%
Low (0-1)	216	29	13.4%								
Total	549	127	23.1%	Total	377	87	23.1%	Total	399	93	23.3%
Statistical Significance		$\chi^2 = 28.07, p < .001$				$\chi^2 = 28.92, p < .001$				$\chi^2 = 15.36, p < .01$	
Total Recidivism											
Risk Class	N	Re-arrests	Recidivism Rate	Risk Class	N	Re-arrests	Recidivism Rate	Risk Class	N	Re-arrests	Recidivism Rate
Surveillance (6-12)	20	10	50.0%	High (12+)	31	21	67.7%	High (3-12)	58	28	48.3%
High (4-5)	93	37	39.8%	Medium (4-11)	132	32	24.2%	Medium (1-2)	152	34	22.4%
Medium (2-3)	220	60	27.3%	Low (0-3)	214	38	17.8%	Low (0)	189	36	19.0%
Low (0-1)	216	30	13.9%								
Total	549	137	25.0%	Total	377	91	24.1%	Total	399	98	24.6%
Statistical Significance		$\chi^2 = 32.38, p < .001$				$\chi^2 = 36.95, p < .001$				$\chi^2 = 21.10, p < .001$	

Table 5 examines the data for Sex Offense recidivism, Non-Sex Offense recidivism, and Total recidivism, by STATIC-99, STABLE-2007, and ACUTE-2007 risk levels. The differences in recidivism rates between the STATIC-99 risk levels are statistically significant for Non-Sex Offense recidivism ($p < .001$) and Total recidivism ($p < .001$), but not for Sex Offense recidivism. For the STABLE-2007, there were statistically significant differences in recidivism rates, between risk levels, for Sex Offense recidivism ($p < .01$), Non-Sex Offense recidivism ($p < .001$), and Total recidivism ($p < .001$). The ACUTE-2007 revealed statistically significant differences between risk levels, for Sex Offense recidivism ($p < .05$), Non-Sex Offense recidivism ($p < .01$), and Total recidivism ($p < .001$).

Table 6: Recidivism Rates, by Combined Sex Offender Risk Level (CSORL) Classifications

CSORL		Sex Offense Recidivism	
Risk Class	# of Offenders	Re-arrests	Recidivism Rate
Surveillance	1	0	0.0%
High	19	2	10.5%
Medium	42	0	0.0%
Low	310	2	0.6%
<i>Total</i>	<i>372</i>	<i>4</i>	<i>1.1%</i>
<i>Statistical Significance</i>		$\chi^2 = 16.96, p < .01$	$\Phi = .214, p < .01$

CSORL		Non-Sex Offense Recidivism	
Risk Class	# of Offenders	Re-arrests	Recidivism Rate
Surveillance	1	1	100.0%
High	19	12	63.2%
Medium	42	16	38.1%
Low	310	58	18.6%
<i>Total</i>	<i>372</i>	<i>87</i>	<i>23.3%</i>
<i>Statistical Significance</i>		$\chi^2 = 28.91, p < .001$	$\Phi = .279, p < .001$

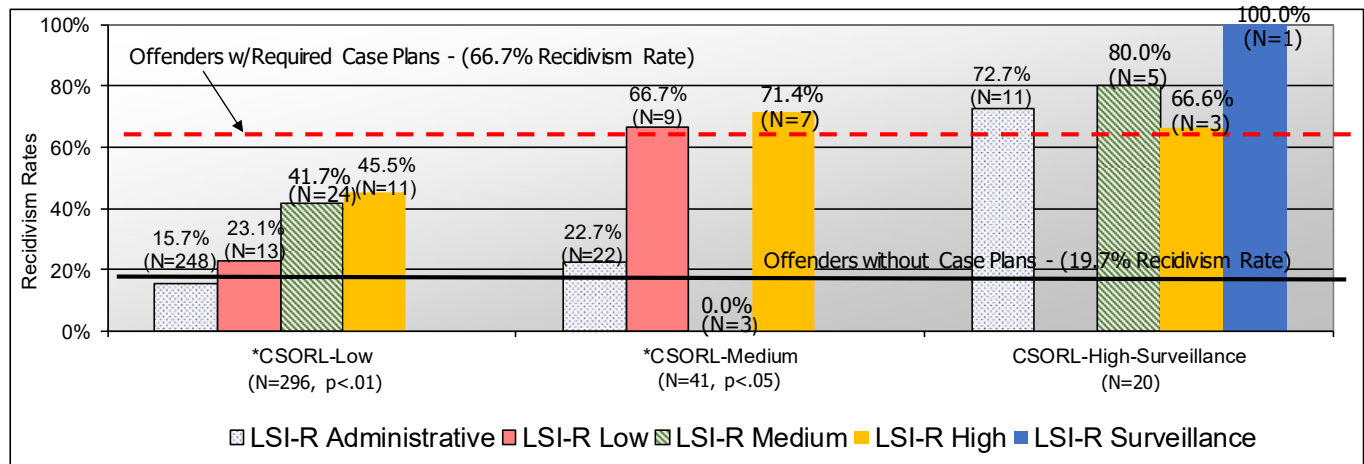
CSORL		Total Recidivism	
Risk Class	# of Offenders	Re-arrests	Recidivism Rate
Surveillance	1	1	100.0%
High	19	14	73.7%
Medium	42	16	38.1%
Low	310	60	19.2%
<i>Total</i>	<i>372</i>	<i>91</i>	<i>24.3%</i>
<i>Statistical Significance</i>		$\chi^2 = 36.60, p < .001$	$\Phi = .314, p < .001$

The risk level for the Combined Sex Offender Risk Level (CSORL) classification system has statistically significant predictive validity for Sex Offense, Non-Sex Offense, and Total Offense recidivism.

Note: Phi (Φ) measures the statistical strength of association or the correlation between two grouped variables such as individual CSORL risk levels and recidivism. A Phi (Φ) coefficient that is near zero has no associative value between two variables, and would likely have no statistical significance between variables. A Phi (Φ) near 1.0 has almost perfect association, and would likely have statistical significance when comparing the differences in recidivism rates across risk levels.

Table 6 analyzes the predictive validity of the Combined Risk Classification Level (CSORL) established by the STATIC-99 and STABLE-2007. The STATIC-99 and STABLE-2007 show predictive validity for Sex Offense ($p < .01$), Non-Sex Offense ($p < .001$) and Total Offense ($p < .001$) recidivism.

Figure 4: Recidivism Rates, by CSORL and LSI-R Risk Classifications



*Differences in LSI-R risk classifications recidivism rates within each CSORL risk level are statistically significant for the CSORL-Low ($p<.01$) and CSORL-Medium ($p<.05$) risk groups.

Figure 4 depicts the recidivism rates of sex offenders who were classified at Low, Medium, and combined High-Surveillance risk levels in the CSORL. Recidivism rates for each CSORL risk level are presented relative to offenders with Administrative level criminogenic risk (LSI-R total score < 19), Low risk (LSI-R 19-20), Medium risk (LSI-R 21-25), High risk (LSI-R total score 26-35), and Surveillance level risk (LSI-R >36). Only offenders who were classified as CSORL- Low risk ($p<.01$) and CSORL- Medium risk ($p<.05$) had statistically significant differences in recidivism rates, when cross-referenced to LSI-R risk levels.

Sex offenders who met the threshold for required case plans (see Table 4) recidivated at a rate of 66.7%, as compared to 19.7% for recidivists who did not meet the case plan threshold.

Table 7: Risk Items Most Sensitive (Predictive Strength) to Sex Offense Recidivism

Instrument	Instrument Items	SO Recidivism Rates		
		Risk Item Present	Risk Item Absent	Point Difference
STATIC-99	Prior sentencing dates	4.7% (n=106)	1.1% (n=443)	3.6***
	Any stranger victims	3.3% (n=123)	1.4% (n=426)	1.9
	Prior non-sexual violence convictions	2.5% (n=120)	1.6% (n=429)	0.9
	Any unrelated victims	2.2% (n=359)	1.1% (n=190)	1.1
	Stranger male victims.	2.1% (n=47)	1.8% (n=502)	0.3
	Have not ever lived with lover for 2 yrs.	2.0% (n=151)	1.8% (n=398)	0.2
	Any convictions for non-contact sex	1.9% (n=52)	1.8% (n=497)	0.1
	Prior sex offense convictions¹	1.7% (n=59)	1.8% (n=490)	-0.1***
	Sex Offense under 25 years	1.2% (n=85)	1.7% (n=460)	-0.5
	Index non-sexual violence convictions	1.2% (n=83)	1.9% (n=466)	-0.7
STABLE-2007	Hostility toward women	4.9% (n=61)	0.3% (n=313)	4.6*
	Sex as coping	4.4% (n=45)	0.6% (n=332)	3.8**
	Impulsive acts	3.4% (n=88)	0.3% (n=289)	3.1***
	Sex drive/preoccupation	2.8% (n=71)	0.7% (n=306)	2.1*
	Cooperation with supervision	2.7% (n=74)	0.7% (n=303)	2.0
	Poor cognitive problem solving skills	2.4% (n=124)	0.4% (n=253)	2.0***
	General social rejection or loneliness	1.9% (n=107)	0.7% (n=270)	1.2
	Significant social influences	5.0% (n=40)	0.6% (n=332)	4.4***
	Deviant sexual preferences or interests	1.3% (n=77)	1% (n=300)	0.3
	Capacity for relationship stability with lovers and intimate partner	0.9% (n=112)	1.1% (n=263)	-0.2
	Lack of concern for others	1.1% (n=92)	1.1% (n=285)	0.0
	Negative emotionality or hostility	0% (n=63)	1.3% (n=314)	-1.3
	Emotional identif. with children	0% (n=28)	0.7% (n=305)	-0.7
ACUTE-2007	Victim Access	5.1% (n=78)	0.3% (n=321)	4.8*
	Rejection of Supervision	2.0% (n=50)	1.2% (n=348)	0.9
	Hostility	1.9% (n=56)	1.2% (n=343)	0.7
	Sexual Preoccupation	1.27% (n=79)	1.25% (n=320)	.02***

*p<.001; **p<.01; ***p<.05

¹The multiple categories of sex offender crimes were collapsed under the item, "Prior Sex Offense Convictions."

Table 7 rank orders (from high to low) the Sex Offense recidivism rates for offenders with the presence or absence of risk items as scored on the STATIC-99, STABLE-2007, and ACUTE-2007. Table 7 also shows differences in recidivism rates between offenders who scored >1 (presence of risk) versus offenders who scored zero (absence of risk), for each individual assessment item. Higher recidivism rates associated with offenders who indicate a presence of risk, as compared to offenders who are absent of risk, are important measures of predictive validity. Two out of the ten STATIC-99 risk items show statistically significant differences in recidivism rates, when comparing offenders with presence versus absence of risk. The percentage-point difference in recidivism rates for "Prior Sentencing Dates" (3.6), and "Prior Sex Offense Convictions" (-.01) have statistically significant p-values. For the STABLE-2007, six of the thirteen items have statistically significant percentage-point differences in recidivism rates between present versus absent risk items. They include "Hostility Toward Woman" (4.6), "Sex as Coping" (3.8), "Impulsive Acts" (3.1), "Sex Drive/Preoccupation" (2.1), "Poor Cognitive Problem Solving Skills" (2.0), and "Significant Social Influences" (4.4). For the ACUTE-2007, two of the four risk items have statistically significant percentage-point differences between present and absent risks: "Victim Access" (4.8) and Sexual Preoccupation (.02).

Table 8: Risk Items Most Sensitive (Predictive Strength) to Non-Sex Offense Recidivism

Instrument	Instrument Items	Non-SO Recidivism Rates		
		Risk Item Present	Risk Item Absent	Point Difference
STATIC-99	Prior sentencing dates	38.7% (n=106)	19.4% (n=443)	19.3*
	Sex Offense under 25 years	37.6% (n=85)	20.4% (n=460)	17.2**
	Prior sex offense convictions¹	37.3% (n=59)	21.4% (n=490)	15.9**
	Index non-sexual violence convictions	32.5% (n=83)	21.5% (n=466)	11.0***
	Prior non-sexual violence convictions	30.8% (n=120)	21.0% (n=429)	9.8***
	Have not ever lived with lover for 2 yrs.	30.5% (n=151)	20.4% (n=398)	10.1***
	Any convictions for non-contact sex	28.8% (n=52)	22.5% (n=497)	6.3
	Stranger male victims.	27.7% (n=47)	22.7% (n=502)	5.0
	Any stranger victims	26.0% (n=123)	22.3% (n=426)	3.7
STABLE-2007	Any unrelated victims	25.6% (n=359)	18.4% (n=190)	7.2
	Sex as coping.	44.4% (n=45)	20.2% (n=332)	24.2**
	Hostility toward women	42.6% (n=61)	19.5% (n=313)	23.1*
	Cooperation with supervision	40.5% (n=74)	18.8% (n=303)	20.7*
	Lack of concern for others	40.2% (n=92)	17.5% (n=285)	22.7*
	Negative emotionality or hostility	36.5% (n=63)	20.4% (n=314)	11.1*
	Impulsive acts	36.4% (n=88)	19.0% (n=289)	17.4*
	General social rejection	32.7% (n=107)	19.3% (n=270)	13.4**
	Sex Drive/preoccupation	32.4% (n=71)	20.9% (n=306)	11.5**
	Significant social influences	31.7% (n=139)	18.1% (n=238)	13.6**
	Poor cognitive problem solving skills	30.6% (n=124)	19.4% (n=253)	11.2*
	Deviant sexual preferences or interests	26.0% (n=77)	22.3% (n=300)	3.7
ACUTE-2007	Capacity for relationship stability with lovers and intimate	26.0% (n=258)	16.8% (n=119)	9.2**
	Emotional ID with children	14.3% (n=28)	23.6% (n=305)	-9.3
	Rejection of Supervision	40.0% (n=50)	20.7% (n=348)	19.3**
	Substance Abuse	40.0% (n=30)	21.7% (n=368)	18.3*
	Hostility	32.1% (n=56)	21.9% (n=343)	10.2
	Sexual Preoccupation	31.6% (n=79)	21.3% (n=320)	10.3
	Victim Access	30.8% (n=78)	21.5% (n=321)	9.3
	Emotional Collapse	28.8% (n=66)	22.2% (n=333)	6.6
	Collapse of Social Support	27.1% (n=48)	22.8% (n=351)	4.3

*p<.001; **p<.01; ***p<.05

¹The multiple categories of sex offender crimes were collapsed under the item, "Prior Sex Offense Convictions."

Table 8 rank orders (from high to low) the Non-Sex Offense recidivism rates for offenders with the presence or absence of risk items on the STATIC-99 and STABLE-2007. Five out of the ten STATIC-99 risk items reveal statistically significant differences in recidivism rates between items that have a presence of risk versus items that are absent of risk. The differences in recidivism rates for "Prior Sentencing Dates" (19.3), "Sex Offense under 25 Years" (17.2), "Prior Sex Offense Convictions" (15.9), "Index Non-Sexual Violence Convictions" (11.0), "Prior Non-Sexual Violence Convictions" (9.8), and "Have Not Ever Lived with a Lover for Two Years" (10.1) are statistically significant. For the STABLE-2007, eleven out of the thirteen items have statistically significant percentage-point differences in recidivism rates between present versus absent risk items. They include: "Sex as Coping"(24.2), "Hostility Toward Woman" (23.1), "Cooperation with Supervision" (20.7), "Lack of Concern for Others" (22.7), "Negative Emotionality or Hostility" (11.1), "Impulsive Acts" (17.4), "General Social Rejection" (13.4), "Sex Drive/Preoccupation" (11.5), "Significant Social Influences" (13.6), "Poor Cognitive Problem Solving Skills" (11.2), and "Capacity for Relationship Stability with Lovers and Intimate Partner (9.2). For the ACUTE-2007, two out of the seven risk items have statistically significant percentage-point differences between present versus absent risks: "Rejection of Supervision" (19.3) and "Substance Abuse" (18.3).

4. Validation

Table 9: STATIC-99 Probability Analysis

STATIC-99 Risk Level (n=553)	Recidivism "Odds" Ratio (Exp B)	Recidivism Risk Increase (Exp B - 1)	Predictive Validity (ROCs)
Sex Offense (SO) Recidivism			
Surveillance (6-12)	no sig.		Not Significant
High (4-5)	no sig.		
Medium (2-3)	no sig.		
Low (0-1)	(reference)	(reference)	
Non-Sex Offense Recidivism			
Surveillance (6-12)	**5.28	427.6%	.646*
High (4-5)	*3.89	289.1%	
Medium (2-3)	**2.10	109.8%	
Low (0-1)	(reference)	(reference)	
Total Recidivism			
Surveillance (6-12)	**6.20	520.0%	.649*
High (4-5)	*4.10	309.6%	
Medium (2-3)	*2.33	132.5%	
Low (0-1)	(reference)	(reference)	

*p<.001; **p<.01; ***p<.05

Technical Notes: The odds ratio compares the relative event probabilities between two groups. Relative recidivism is defined as the risk of re-arrest occurrence in relationship to a hypothetical reference group that is at even (1:1) odds of re-arrest. The ROC is a statistical measure that predicts the risk instrument's predictive capability to correctly identify individuals who are at risk for criminal activity. The ROC is a statistical coefficient where a perfect 1.0 represents the highest degree of risk selection predictive success, with little or no potential for making a risk classification error, while a ROC coefficient of 0.50 or less represents the failure of a risk assessment instrument to accurately predict the offender recidivism risk.

Table 9 shows the recidivism odds and relative risk for Sex Offense, Non-Sex Offense, and Total Offense recidivism, by STATIC-99 risk level. The recidivism odds ratio and ROC for Sex Offense recidivism were not statistically significant. The lack of risk-level predictive validity may be due to the small number of Sex Offense recidivists (R=10) out of the 549 sex offenders studied. For Non-Sex Offense recidivism, the three levels of risk have statistically significant odds of re-arrest; e.g., the relative odds of recidivism increases by 428% (5.28:1 odds risk) for a Surveillance risk offender, or over five times the risk of recidivism in comparison to a low risk offender who is designated at even odds (1:1 odds risk) of risk. With respect to Total recidivism, the relative recidivism risk for Surveillance risk offenders increased by 520% (6.2:1 odds risk), or over six times the risk of recidivism relative to the low risk offender. Additionally, the STATIC-99 is able to accurately classify offenders by increasing risk for Non-Sex Offense recidivism (ROC=.646, p<.001), and Total recidivism (ROC=.649, p<.001).

The STATIC-99 lacks predictive validity for Sex Offense recidivism and is unable to accurately classify offenders by risk levels.

Table 10: STABLE-2007 Probability Analysis

STABLE-2007 Risk Level (n=377)	Recidivism "Odds" Ratio (Exp B)	Recidivism Risk Increase (Exp B - 1)	Predictive Validity (ROCs)
Sex offense (SO) Recidivism			
High (>=12)	no sig.		.817***
Medium (4 - 11)	no sig.		
Low (<4)	(reference)	(reference)	
Non-Sex Offense Recidivism			
High (>=12)	*7.33	633.3%	.646*
Medium (4 - 11)	no sig.		
Low (<4)	(reference)	(reference)	
Total Recidivism			
High (>=12)	*9.726	872.6%	.660*
Medium (4 - 11)	no sig.		
Low (<4)	(reference)	(reference)	

*p<.001; **p<.01; ***p<.05

The STABLE-2007 has good predictive ability (ROCs) to correctly classify offenders by increasing risk levels.

Table 10 shows that the STABLE-2007 is unable to predict increased risk for Medium and High level offenders for Sex Offense recidivism. There is however, statistically significant odds ratio (Exp B) for Non-Sex Offense recidivism (7.3:1); specifically, a 633% increase in recidivism risk for High risk offenders, as compared to Low risk offenders. With regard to Total recidivism, High risk offenders have a 9.7:1 odds ratio (873% increased recidivism risk), when compared to Low risk offenders (reference). The STABLE-2007 also has adequate predictive validity for Sex Offense recidivism (ROC=.817, p<.05), Non-Sex Offense recidivism (ROC=.646, p<.001), and Total recidivism (ROC=.660, p<.001).

Table 11: ACUTE-2007 Probability Analysis

ACUTE-2007 Risk Level (n=399)	Recidivism "Odds" Ratio (Exp B)	Recidivism Risk Increase (Exp B - 1)	Predictive Validity (ROCs)
Sex offense (SO) Recidivism			
High (>=2 pts)	no sig.		Not Significant
Medium (1 pt.)	no sig.		
Low (=0 pts)	(reference)	(reference)	
Non-Sex Offense Recidivism			
High (>=3 pts)	*3.33	233.0%	.591**
Medium (1-2 pts)	no sig.		
Low (=0 pts)	(reference)	(reference)	

p<.01; *p<.05

Table 11 reveals the recidivism odds and relative risk for Sex Offense and Non-Sex Offense recidivism, based on the ACUTE-2007 risk levels. For Non-Sex Offense recidivism, High risk offenders have a 3.3:1 odds ratio (233% increased recidivism risk) when compared to Low risk offenders (reference). The ACUTE-2007 also has adequate predictive validity for Non-Sex Offense recidivism (ROC=.591, p<.01). The ACUTE-2007 is unable to predict increased risk for Medium and High level offenders.

5. Summary and Recommendations

This study report examined the relative predictive strengths of the STATIC-99, STABLE-2007, and ACUTE-2007 for Sex Offense and Non-Sex Offense recidivism. The study results show a larger number and proportion of Low risk offenders, and a smaller proportion of High risk offenders, with average STATIC-99 and STABLE-2007 scores that are comparatively lower than other validation studies reported across the country⁴. The offender demographics presented in this report reflect a population that is predominantly male; older (nearly half are age 50 or above); single (70% are unmarried); and comes from diverse racial and ethnic groups (Table 1). The offenders in this study are primarily convicted sex offender felons (75.5%), although a smaller percentage of offenders were sentenced for other, non-related sex offenses, but had previous sex offender histories. With respect to instrument reliability, there is evidence of internal consistency (mutual association) *within* risk items for all three instruments (Table 2), which suggests adequate to good instrument reliability (STATIC-99, $\alpha=.46$; STABLE-2007, $\alpha=.83$; and ACUTE-2007, $\alpha=.61$ (Sex Violence) and $\alpha=.71$ (General Recidivism)).

The summary below individually discusses the STATIC-99, STABLE-2007, and ACUTE-2007 risk assessment instruments for predictive validity. The data indicate that the three sex offender risk assessment instruments have statistically insignificant or weak predictability for Sex Offense recidivism, which may be at least partially due to the comparatively large proportion of low risk sex offenders, and commensurately low recidivism rates, in Hawaii. Although such uneven risk-range distribution and low recidivism counts limit the power and sensitivity of key statistical analyses, communities in Hawaii obviously benefit from having a disproportionately large proportion of low (as compared to high) risk sex offenders. On the other hand, the risk assessment instruments showed statistically significant predictive validity for Non-Sex Offense recidivism. However, due to the importance of validating the STATIC-99, STABLE-2007, and ACUTE-2007 instruments for predicting Sex Offense recidivism, by risk levels, this summary will primarily focus on Sex Offense recidivism validation. This section also individually discusses the issues and limitations involved in the validation of the three assessment instruments, and of Hawaii's SOMT matrices (CSORL, Sex Offender Case Plan Matrix).

STATIC-99 Risk Assessment Instrument

The STATIC-99 exhibits no predictive strength (Table 5) for Sex Offense recidivism since it failed to establish a statistical relationship between Sex Offense recidivism rates and risk levels. Also, only two of the ten individual risk items (Prior Sentencing Dates, and Prior Sex Convictions) show predictive validity when comparing Sex Offense recidivism rates for offenders with a present risk factor, versus offenders without (absent) that factor (Table 7). The lack of predictive validity for Sex Offense recidivism may be due to the STATIC-99's low average score (2.28), resulting in over 78% of the offenders scoring at the Low to Low-Medium risk range. With respect to Non-Sex Offense recidivism, the STATIC-99 shows strong predictive validity, although this does not substantiate the use of the STATIC-99, given the success of the LSI-R as a validated risk-prediction instrument. A review of STATIC-99 validation studies⁴ shows statistically significant predictive validity. These studies included larger ($n>1,000$) numbers of sex offenders, longer follow-up periods, and a wider cross-section of sex offenders across risk levels. Additionally, other STATIC-99 studies revealed higher Sex Offense recidivism rates and a larger proportion of sex offenders at High risk, as compared to Hawaii's study, which may be important factors related to the STATIC-99's poor predictive validity.

⁴California Department of Public Safety, *Predictive Validity of the STATIC-99R, a 10-Year Study of Sexual Offenders in California*, Lee S.C. and Hanson, R.K., 2018 Update; Public Safety Canada, *Assessing the Risk of Sexual Offenders on Community Supervision: The Dynamic Supervision Project*, Hanson, R. K., Harris, A. J., Scott T. L., & Helmus, L. May 2007; Iowa Department of Corrections, *Statistical Validation of the ISORA8 and STATIC-99 Final Report*, January 2010; and New York State Division of Criminal Justice Service, *Assessment Instrument Overview: STATIC-99*, Hanson, R.K., Thornton D. January 1999.

Thus, future validation studies may require larger numbers of sex offenders at High risk, a larger multiple-year compilation of assessment data, and/or lengthening of the recidivism follow-up period.

STABLE-2007 Risk Assessment Instrument

The STABLE-2007 has statistically significant ($p < .01$) predictive validity for Sex Offense recidivism (Table 5), by risk level, and a statistically significant ($p < .05$) ROC (Table 10), despite showing no odds-ratio statistical significance. The STABLE-2007 demonstrates some predictive validity when comparing Sex Offense recidivism rates between offenders with a present risk factor, as compared to offenders without (absent) that factor (Table 7). Six of the thirteen STABLE-2007 risk factors have significantly higher recidivism rates when the risk factor is present (as opposed to absent) in offenders. These include "Hostility Toward Women," "Acts Impulsively," uses "Sex as Coping," has a "Sex-drive Preoccupation," has "Poor Cognitive and Problem Solving Skills," and has "Significant Social Influences." The low recidivism rate (1.1%) for sex offenses; the limited number of offenders assessed ($n=377$); and no odds-ratio/ROC statistical significance for Sex Offense recidivism reduce the statistical power and confidence in recidivism predictability for the STABLE-2007. Additionally, the study results show a smaller number of recidivists ($r=4$) arrested for new sex offenses, and a smaller proportion of High risk sex offenders, as compared to the results from other STABLE-2007 studies. Thus, future Hawaii studies may require larger numbers of sex offenders analyzed for Sex Offense recidivism.

ACUTE-2007 Risk Assessment Instrument

The ACUTE-2007 has lower statistically significant risk-level predictive validity for Sex Offense recidivism (Table 5), but at a lower level of statistical significance ($p < .05$). The ACUTE-2007 has no odds-ratio or ROC statistical significance (Table 10). The ACUTE-2007 has some predictive validity when comparing Sex Offense recidivism rates between offenders with a present risk factor, as compared to offenders without (absent) that factor, for two of the four risk factors: having "Victim Access," and has a "Sexual Preoccupation." The low average recidivism rate (1.3%); a limited number of offenders assessed ($n=399$); and no odds-ratio/ROC statistical significance for Sex Offense recidivism limit the statistical power and confidence in risk-level prediction for the ACUTE-2007. Thus, future studies may require a larger compilation of subjects over a greater number of years than were included in the current study.

Hawaii's CSORL and Case Planning Matrices

The Combined Risk Classification Level (CSORL) consolidates the STATIC-99 and STABLE-2007 risk levels (Table 6, Figure 4) into a matrix used to determine optimum community supervision levels. The sex offenders who are predominantly at Low risk level (82.6%) require minimal supervision, while fewer sex offenders classified at High-Surveillance risk level (5.1%) require more intensive supervision. The study results show statistically significant differences in Sex Offense recidivism ($p < .01$), by risk level. However, due to the STATIC-99's lack of predictive validity for Sex Offense recidivism, the use of the CSORL for community supervision purposes warrants scrutiny. It is also difficult to determine the impact of combining risk levels from the STATIC-99 and STABLE-2007, due to the small number of sex-offending recidivists. Also, the disparity or lack of proportionality between risk levels limits the utility of the CSORL as a guide in determining offender supervision levels.

Sex offender case planning can benefit community supervision officers by targeting the most pressing criminogenic needs, and referring offenders to the most effective interventions. By combining the CSORL with the Level of Service Inventory – Revised (LSI-R) risk levels, officers can determine which offenders need case plans that target criminogenic areas determined from the LSI-R and STABLE-2007 assessments. The study results show good predictive validity demonstrated by the case plan matrix. After combining the CSORL with the LSI-R risk levels, those offenders who meet the case-planning criteria (Table 4) recidivate at a higher rate (66.7%), as compared to offenders who do not meet the case plan criteria (19.7%). (Figure 4).

Furthermore, Figure 4 shows that offenders at varying LSI-R risk levels have statistically significant differences in recidivism rates, when separately classified by the CSORL at Low ($p < .01$) or Medium ($p < .05$) levels. However, caution needs to be applied when using the Case Plan Matrix to identify offenders in need of intensive supervision and treatment services. Classification errors are compounded when risk groups from two or more risk assessment instruments are combined to create risk assessment matrices. Additional discussion and research are critical to assess the value of the Case Plan Matrix, specifically in identifying predominant treatment needs, based on the STABLE-2007, or in targeting criminogenic areas established by the LSI-R.

Recommendations for Improving Measurement Validity and Reliability

1. Improve measurement validity by incorporating methodologies utilized in other published studies, such as compiling a larger study population of sex offenders, setting a longer recidivism follow-up period, and possibly using different recidivism definitions.
2. Increase STATIC-99, STABLE-2007, and ACUTE-2007 instrument reliability by improving the officer's consistency in rating individual assessment items, and in strengthening the officer's knowledge of the instruments' scoring rules and parameters.
3. Greater weight should be placed on the non-parametric (chi-square analysis) statistical tests, instead of the parametric (odds-ratio) analyses, because the latter require a larger number of Sex Offense recidivists in order to increase statistical power.

6. Recommendations for policy development

The following recommendations represent important ICIS policy issues pertaining to the STATIC-99, STABLE-2007, and ACUTE-2007.

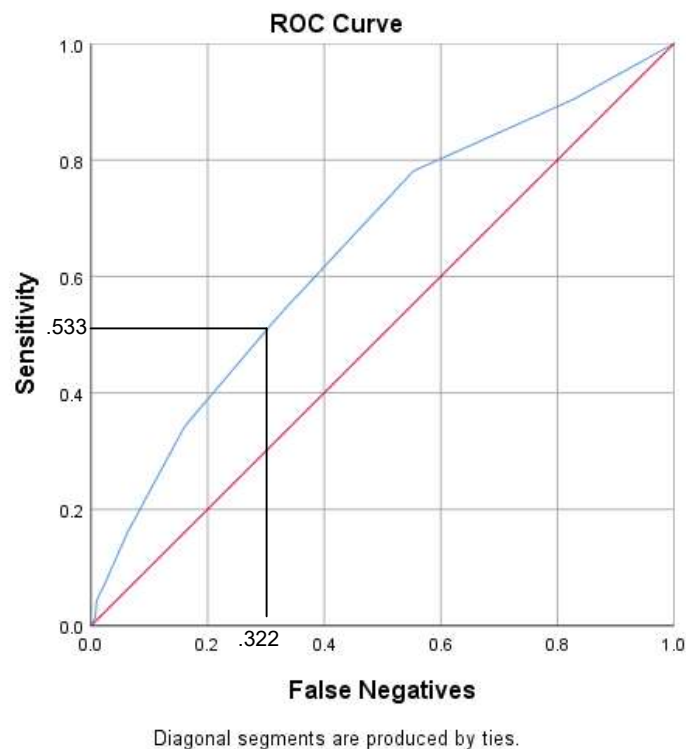
1. ICIS should continue to administer and evaluate the STATIC-99, STABLE-2007, and ACUTE-2007 as risk classification instruments. The use of national cut-off scores warrants further review as additional local assessment data become available.
2. Supervision officers, treatment providers, and other professionals who service sex offenders must adhere to the policies, procedures, and practice standards established by each agency.
3. Training opportunities should be increased for both supervision officers and treatment providers in order to improve sex offender assessment and treatment fidelity. ICIS should work in partnership with the Academy for Training on Sex Offender Management (HATSOM) to ensure that officers and treatment providers have the necessary training and skills to supervise and provide treatment to sex offenders.

4. The legislatively mandated Sex Offender Management Team (SOMT) agencies should meet on at least a quarterly basis, with or without a filled coordinator position, so that they can be apprised of established risk assessment protocols and standards, identify strengths and gaps, and provide support to supervision officers, treatment providers, and other community agencies.
5. A thorough review by both ICIS and a new SOMT is needed to identify and evaluate current policies and procedures. This includes the review of current research on sex offender assessment, treatment, and evidence-based practice.
6. Strengthen coordination efforts between the ICIS agencies and sex offender treatment providers, and increase coordination between ICIS and SOMT.

Appendix A

STATIC-99 ROCs, based on Total Recidivism

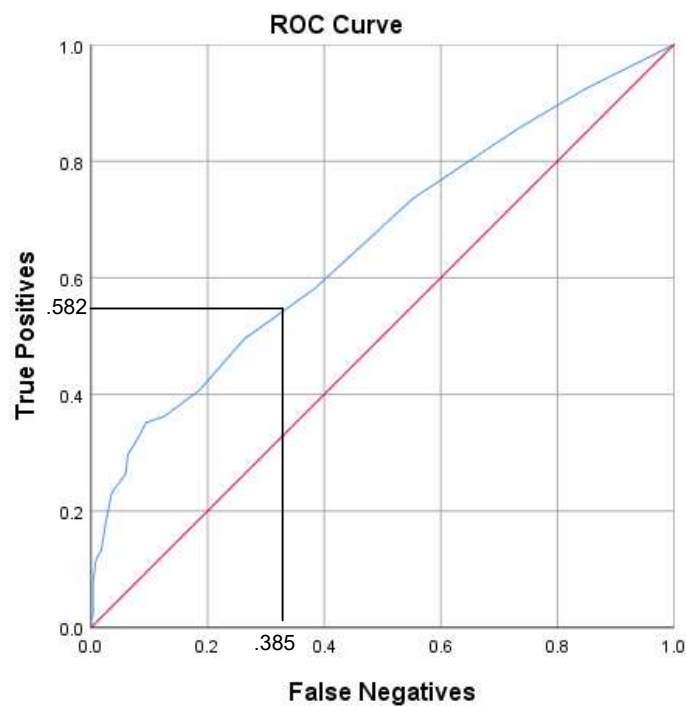
- The STATIC-99 has adequate validity in predicting (total raw scores) recidivism (ROC=.648, $p < .001$; C.I. .595 to .720)
- There is a 53.3% chance of successfully classifying an offender at increased recidivism risk (true positive). Conversely, there is a 32.2% chance of incorrectly classifying an offender at low recidivism risk when they are actually at high risk (false negative).



Appendix B

STABLE-2007 ROCs, based on Total Recidivism

- The STABLE-2007 has adequate validity in predicting (total raw scores) recidivism (ROC=.660, $p < .001$; C.I. .592 TO .728).
- There is a 58.2% chance of successfully classifying an offender at increased recidivism risk (true positive). Conversely, there is a 38.5% chance of incorrectly classifying an offender at low recidivism risk when they are actually at high risk (false negative).



Diagonal segments are produced by ties.

Appendix C

ACUTE-2007 ROCs, based on Non-Sex Offense (Non-SO) Recidivism

- For Non-SO recidivism, the ACUTE-2007 has low validity in predicting (total raw scores) recidivism (ROC=.591, $p < .01$, C.I. .523-.660).
- There is a 62.4% chance of successfully classifying an offender at increased Non-SO recidivism risk (true positive). Conversely, there is a 49.7% chance of incorrectly classifying an offender at low non-sex offense recidivism risk when they are actually at high risk (false negative).

