HAWAII STATE
DEPARTMENT
OF HEALTH

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Timothy Wong, ICIS Research Analyst
Department of the Attorney General

State of Hawaii, 2004 - 2007
Validation of LSI-R and ASUS Criminogenic Risk Instruments

This study report is based on a compilation of LSI-R and ASUS offender information from the CYZAP database, and offender arrest/conviction data from the Criminal Justice Information System (CJIS). The report includes recidivism rates of at-risk offenders who score 5 and above on the PROXY test. Recidivism is an important outcome measure, as it validates the power of risk instruments to correctly classify offenders into distinct risk groups. Recidivism analysis is also helpful for determining the sensitivity of a risk instrument to predict future violations, and by examining the effects of static and dynamic risk variables.   Furthermore, recidivism studies are important for evaluating the impact of offender services, specifically with respect to the reductions in criminal re-offenses and other technical re-violations over time. Finally, the influence of related criminogenic and non-criminogenic factors, e.g., criminogenic sub-domains, criminal offenses committed, and a composite of socio-demographic variables, are critical for conducting recidivism studies.

The major objective of this report is to assist ICIS agencies in evaluating longer-term outcomes, such as recidivism risks, and documenting change in criminogenic risk patterns. It also provides analytical information on how a complement of predictive risk indicators, specified by risk levels, plays an important role in identifying risk assessment patterns, making policy recommendations, and introducing service delivery options.

The statistical charts depicted herein represent a compilation of data that measure recidivism rates in the following areas:
   (1) Type of Agency
   (2) Judicial Circuits
   (3) Socio-demographics
   (4) Age of first arrest
   (5) Types of offenses committed
   (6) LSI-R and ASUS risk parameters

Methodology: The recidivism database was merged with a recent CJIS download that includes 67,815 arrest records taken from 5,200 selected offenders. The methodological approach of this report is to complement existing LSI-R and ASUS statistical profile information with offender arrest data. The recidivism database was prepared as a flat file of unduplicated offender records. Each record contains data fields that incorporate initial and most recent LSI-R and ASUS assessment information, criminal arrests, and convictions. Additionally, calculated fields were added to the database to measure change in both the LSI-R total and protect scores, and criminogenic sub-domain percentiles. Furthermore, the use of calculated date fields, which measure the length of time between assessment and arrest dates, is critical for the measurement of recidivism. For the purpose of this study, recidivism is defined as re-arrests (including technical violations, revocations, and criminal contempt of court sanctions) that occurs after the initial LSI-R or ASUS assessment date. The follow-up period is defined as (two or more years) and (three or more years) from the follow-up date of September 1, 2007. Thus, the 2-year follow-up period begins prior to Sept. 1, 2005, and the 3-year follow-up begins prior to Sept. 1, 2004. These two follow-up periods will provide the most conservative estimate of recidivism.

For further information contact:
Timothy Wong, Research and Statistics Branch
Crime Prevention and Justice Assistance Division
Department of the Attorney General
Ph. #: 587-6399
Email: timothy.i.wong@hawaii.gov
ICIS Web Site: hawaii.gov/icis

This report is available electronically at the ICIS web site: <hawaii.gov/icis>.

Figure 1: Recidivism Rates, by Agency

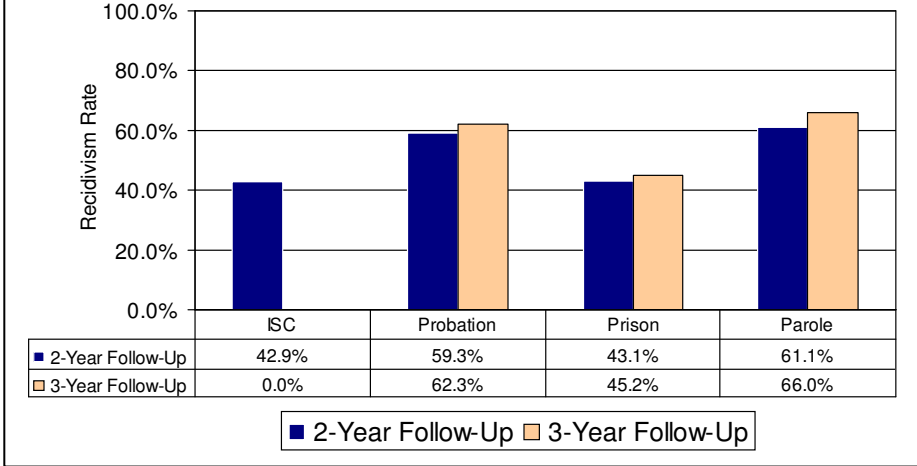|	ISC	Probation	Prison	Parole
2-Year Follow-Up	42.9%	59.3%	43.1%	61.1%
3-Year Follow-Up	0.0%	62.3%	45.2%	66.0%

■ 2-Year Follow-Up   ☐ 3-Year Follow-Up

Figure 1: Identifies recidivism rates for each ICIS agency based on the defined follow-up period. Parole has the highest recidivism rates of 66.0% for the 3-year follow-up, and 61.1% for the 2-year follow-up. Prison has the lowest recidivism rate of 45.2% for the 3-year follow-up (except for ISC), while the Intake Service Center (ISC) has the lowest recidivism rate of 42.9% for the 2-year follow-up.

Figure 2: Recidivism Rates, by County

2-Year Follow-Up (n=1,447)
3-Year Follow-Up (n=631)

	Kauai	Maui	Oahu	Hawaii
2-Year Follow-Up	48.5% (n=33)	40.0% (n=50)	55.2% (n=1,271)	53.8% (n=93)
3-Year Follow-Up	38.9% (n=18)	37.0% (n=27)	58.6% (n=546)	62.5% (n=40)

Source: CJIS, CYZAP, 9.07

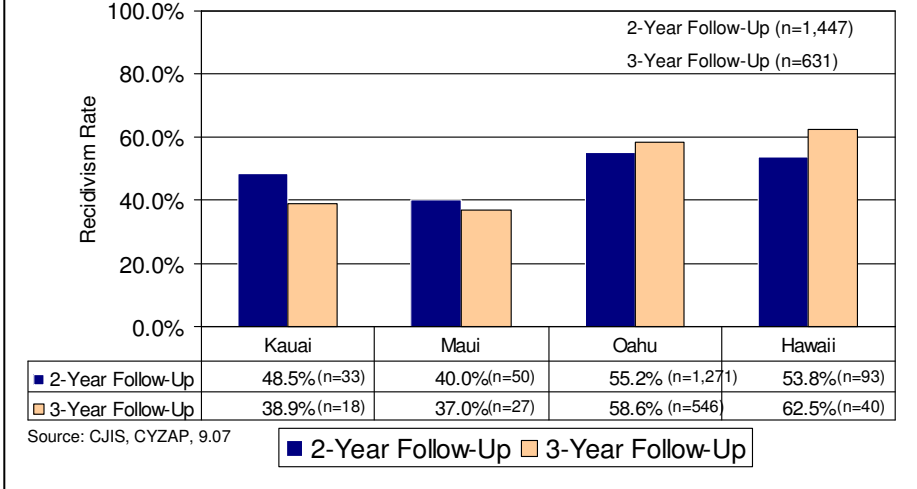■ 2-Year Follow-Up   ☐ 3-Year Follow-Up

Figure 2: Identifies recidivism rates for individual county areas. Hawaii County has the highest recidivism rate of 62.5% for the 3-year follow-up, while the City and County of Honolulu (Oahu) has the highest recidivism rate of 55.2% for the 2-year follow-up. Maui County has the lowest recidivism rates of 37.0% for the 3-year follow-up and 40.0% for the 2-year follow-up.

Figure 3: Recidivism Rates, by Education Level,
All ICIS Agencies - Two-Year Follow-Up

All ICIS Agencies (n=1,243)

	< High School	High School Graduate	Some College
	n=500	n=614	n=129
ICIS Agencies	55.8%	54.6%	54.3%

Recidivism Rate

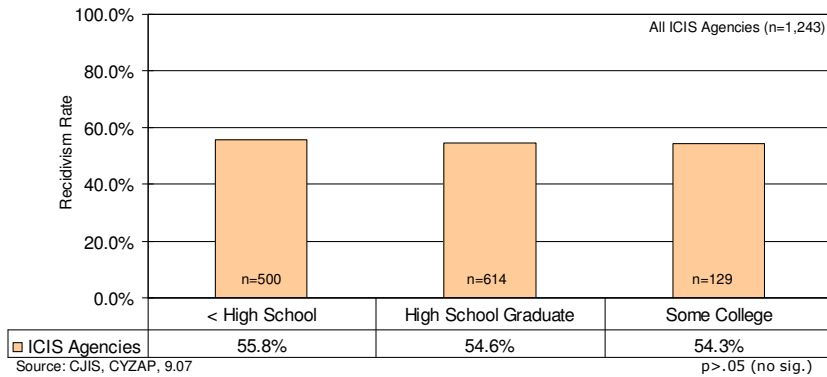Source: CJIS, CYZAP, 9.07   p>.05 (no sig.)

Figure 3: Offenders who have education levels that include < High School, High School Graduates, or Some College, have virtually the same recidivism rates (54.3% - 55.8%). The differences in recidivism rates with respect to offenders with varied educational attainment levels are not statistically significant (p>.05).

Figure 4: Recidivism Rates, by Employment Status,
All ICIS Agencies - Two-Year Follow-Up

All ICIS Agencies (n=1,447)

	Employed	Student	Unemployed (1-3 months)	Unemployed (3+ months)
	n=436	n=4	n=113	n=685
ICIS Agencies	49.8%	50.0%	65.5%	56.6%

Recidivism Rat

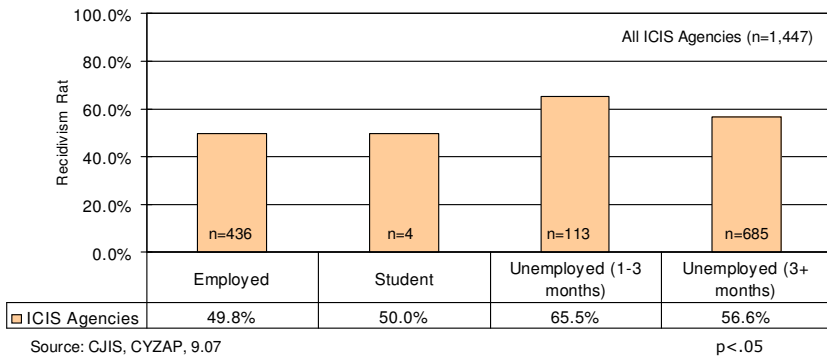Source: CJIS, CYZAP, 9.07   p<.05

Figure 4: Unemployed offenders have higher recidivism rates (56.6% and 65.5%) than do either Employed (49.8%) or Student (50.0%) offenders. The differences in recidivism rates with respect to offenders who are Employed, Unemployed or have Student status are statistically significant (χ^2=11.93; p<.05).

Figure 5: Recidivism Rates, by Marital Status,
All ICIS Agencies - Two-Year Follow-Up

All ICIS Agencies (n=1,447)

	Divorced	Married	Separated	Single	Widowed
	n=329	n=217	n=87	n=800	n=14
ICIS Agencies	54.1%	44.7%	55.2%	56.9%	64.3%

Recidivism Rate

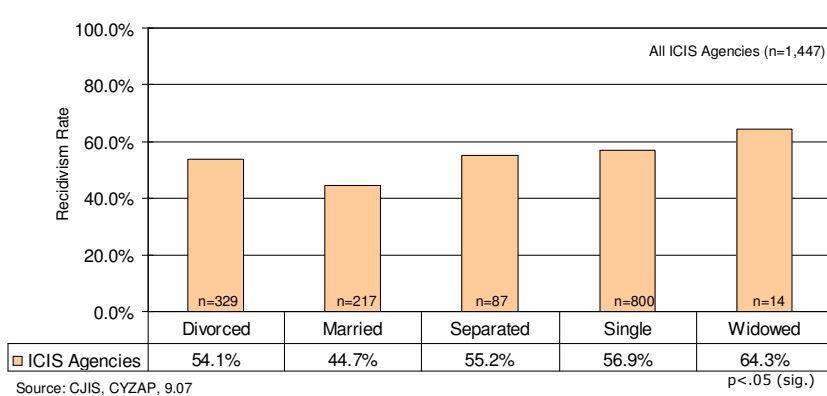Source: CJIS, CYZAP, 9.07   p<.05 (sig.)

Figure 5: The Divorced (54.1%), Separated (55.2%), Single (56.9%), and Widowed (64.3%) offenders have higher recidivism rates than do Married (44.7%) offenders. The differences in recidivism rates with respect to offenders with a distinct marital status are statistically significant (χ^2=10.79; p<.05).

**Figure 6: Recidivism Rates by Age Range,
All ICIS Agencies - Two-Year Follow-Up**

Recidivism Rate

All ICIS Agencies (n=1,414)

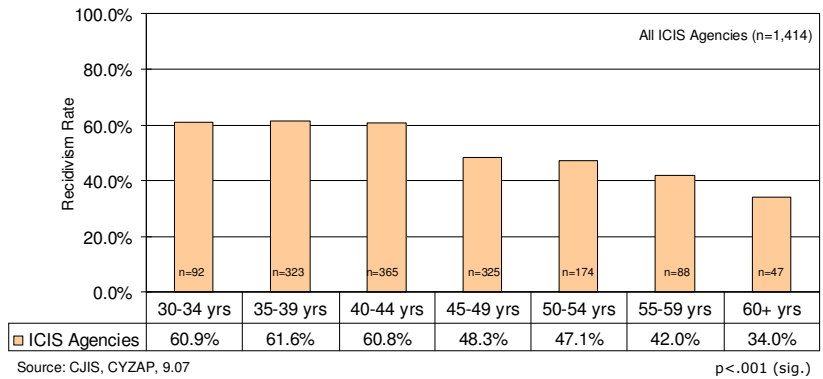|	30-34 yrs	35-39 yrs	40-44 yrs	45-49 yrs	50-54 yrs	55-59 yrs	60+ yrs
	n=92	n=323	n=365	n=325	n=174	n=88	n=47
ICIS Agencies	60.9%	61.6%	60.8%	48.3%	47.1%	42.0%	34.0%

Source: CJIS, CYZAP, 9.07

p<.001 (sig.)

Figure 6: Offenders are less likely to recidivate once they reach 45 years of age. The recidivism rates incrementally decline from a high of 60.8% for the 40-44 year-old age group, to 34.0% for 60+ year-old offenders. The differences in recidivism rates with respect to offender age groups are statistically significant (χ^2=36.23; p<.001).

**Figure 7: Recidivism Rates, by Age at First Arrest,
All ICIS Agencies - Two-Year Follow-Up**

Recidivism Rate

	<18 yrs	18-21 yrs	22-29 yrs	30-39 yrs	40+ yrs
ICIS Agencies	56.4%	55.6%	54.3%	27.8%	19.0%

p<.001 (sig.)
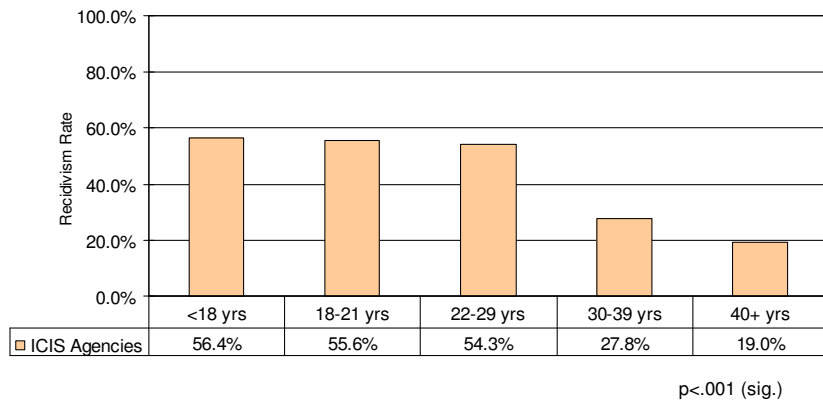
Figure 7: Offenders first arrested in the <18 year-old age range have the highest recidivism rate (56.4%), while offenders >18 years old have declining rates. The decline in recidivism rates begins with Age at First Arrest offenders in the 18-21 year-old age group (55.6%), followed by the 22-29 year-old age group (54.3%), 30-39 year-old age group (27.8%), and the 40+ age group (19.0%). The differences in recidivism rates with respect to age at first arrest are statistically significant (χ^2=27.28; p<.001).

Figure 8: Recidivism Rates, by Type of Initial Offense Committed, Probation Services - Two-Year Follow-Up

All Agencies (n=1,381)
Probation (n=789)

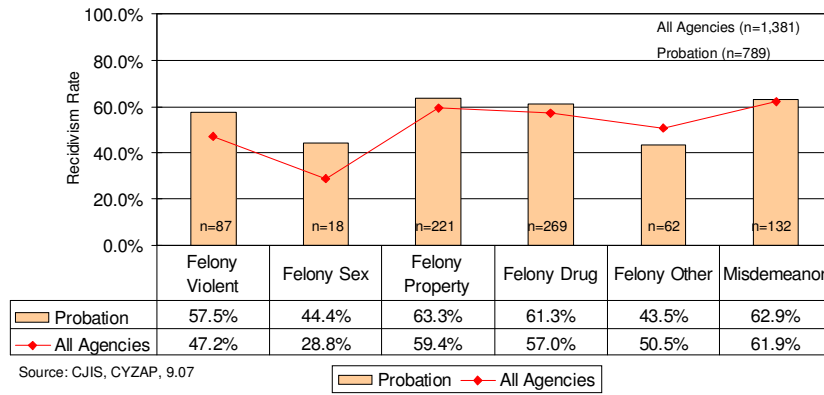|	Felony Violent	Felony Sex	Felony Property	Felony Drug	Felony Other	Misdemeanor
	n=87	n=18	n=221	n=269	n=62	n=132
Probation	57.5%	44.4%	63.3%	61.3%	43.5%	62.9%
All Agencies	47.2%	28.8%	59.4%	57.0%	50.5%	61.9%

Source: CJIS, CYZAP, 9.07

Figure 8: The types of offenses committed are related to varying recidivism rates for offenders on Probation. Offenders on Probation for Felony Property (63.3%), Misdemeanors (62.9%), and Felony Drug (61.3%) offenses have the highest recidivism rates. These rates are consistent across the data compiled in this dataset. Felony Sex (44.4%) and Felony Other (43.5%) have the lowest recidivism rates. However, Felony Sex recidivism rates are much lower than the Felony Sex (28.8%) recidivism compiled from the All Agencies category.

Figure 9: Recidivism Rates, by Initial Type of Offense Committed, Hawaii Paroling Authority - Two-Year Follow-Up

All Agencies (n=1,381)
Parole (n=153)

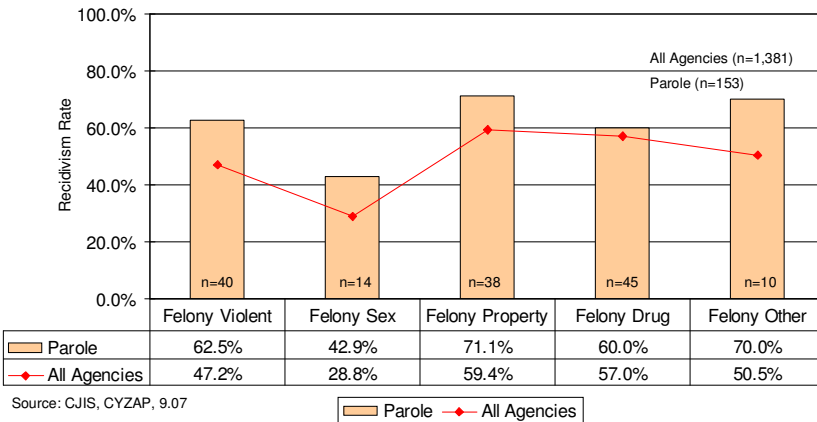|	Felony Violent	Felony Sex	Felony Property	Felony Drug	Felony Other
	n=40	n=14	n=38	n=45	n=10
Parole	62.5%	42.9%	71.1%	60.0%	70.0%
All Agencies	47.2%	28.8%	59.4%	57.0%	50.5%

Source: CJIS, CYZAP, 9.07

Figure 9: The types of offenses committed are related to varying recidivism rates for Parolees. Offenders on Parole for Felony Property (71.1%) and Felony Other (70.0%) offenses have the highest recidivism rates. These rates are considerably higher than those compiled from all agencies. Felony Sex (42.9%) has the lowest recidivism rate. However, the Felony Sex recidivism rate is well above the Felony Sex (28.8%) recidivism compiled from the All Agencies categories.

Figure 10: Recidivism Rates, by Initial Type of Offense, Hawaii Prisons - Two-Year Follow-Up

All Agencies (n=1,381)
Prison (n=432)

	Felony Violent	Felony Sex	Felony Property	Felony Drug	Felony Other
Prison	32.7%	11.1%	48.8%	48.6%	55.6%
All Agencies	47.2%	28.8%	59.4%	57.0%	50.5%

n=101, n=27, n=125, n=142, n=36
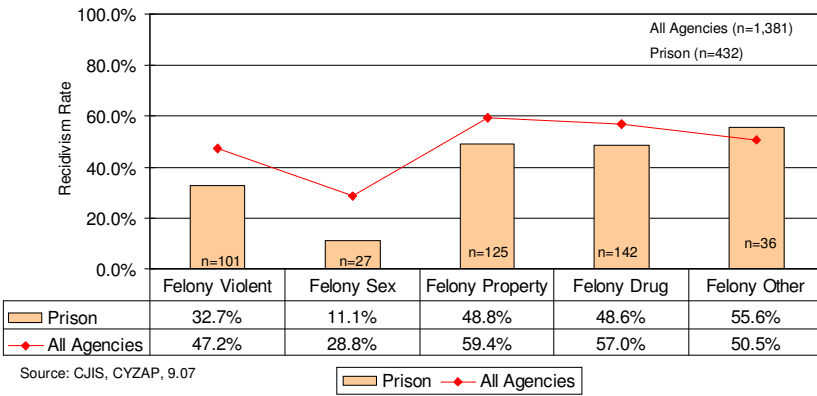
Source: CJIS, CYZAP, 9.07

Prison — All Agencies

Figure 10: The types of offenses committed are related to varying recidivism rates for offenders confined in Prison. Offenders in Prison for Felony Other (55.6%) offenses have the highest recidivism rate. This rate is also higher than the recidivism rate compiled from All Agencies (50.5%). Felony Sex (11.1%) has the lowest recidivism rate. This rate is also lower than the recidivism rate compiled from All Agencies (28.8%). The lower recidivism rate in Prison, when compared to the data compiled from All Agencies, is likely due to the smaller number of inmates who completed their sentencing, and subsequently, were released from prison.

Figure 11: Recidivism Rates, by LSI-R Risk Categories, All ICIS Agencies - Two-Year Follow-Up

All ICIS Agencies (n=1,447)

Average Recidivism Rate

	Administrative	Low	Medium	High	Surveillance
ICIS Agencies	41.9%	49.6%	55.4%	62.6%	60.2%
LSI-R Risk Score	<19	19 - 20	21 - 25	26 - 35	36+

n=365, n=117, n=359, n=503, n=103
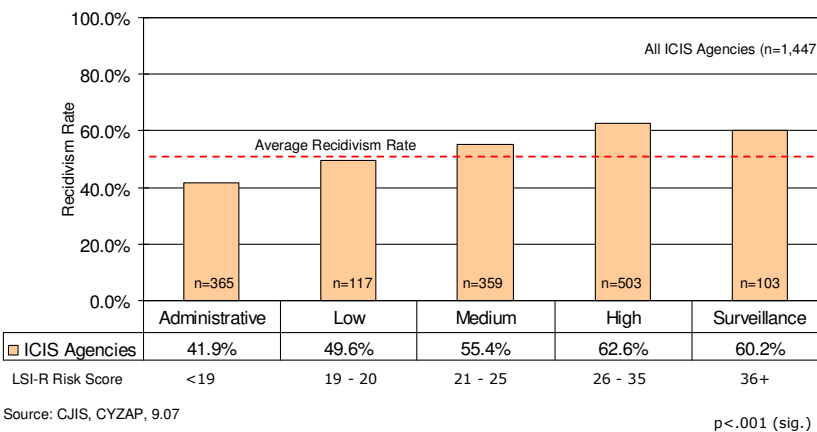
Source: CJIS, CYZAP, 9.07

p<.001 (sig.)

Figure 11: Recidivism rates increase as offender risk levels incrementally move from Administrative (1.9%) to Low (49.6%), Medium (55.4%), and High (62.6%) risk levels. However, the Surveillance (60.2%) risk level does not follow this pattern. The LSI-R risk categories have statistically significant differences in recidivism rates $(\chi^2=39.29; p<.001)$.

Figure 12: Change in LSI-R Total and Protect Scores for Offenders with Increased and Decreased Criminogenic Risk Patterns, All ICIS Agencies - Two-Year Follow-Up
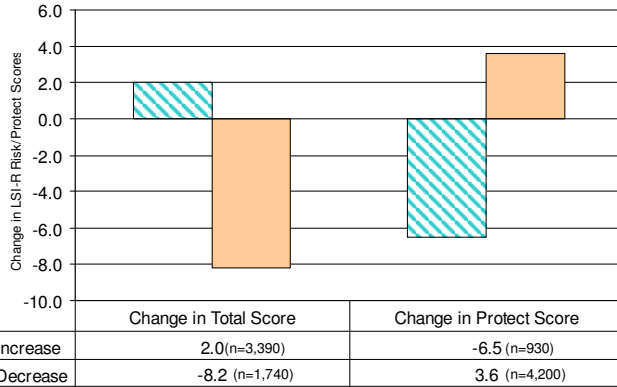
Recidivism Rates

➤Increase in Total Score: 56.1% recidivism
Decrease in Total Score: 51.3% recidivism

Chi sq.=3.07; p<.05
(Fisher's Exact Test)

➤Increase in Protect Score: 51.1% recidivism
Decrease in Protect Score: 67.8% recidivism

Chi sq.=24.99; p<.001
(Pearson Test)

Source: CJIS, CYZAP, 9.07

	Change in Total Score	Change in Protect Score
Criminogenic Risk Increase	2.0(n=3,390)	-6.5 (n=930)
Criminogenic Risk Decrease	-8.2 (n=1,740)	3.6 (n=4,200)
	F=4,767; p<.001	F=2,257; p<.001

Figure 12: Criminogenic Risk Decrease (solid bars), defined as offenders with declining LSI-R total scores, reveals an 8.2 point average decrease in the LSI-R total scores, and a 3.6 point average increase in LSI-R protect scores. On the other hand, offenders at Criminogenic Risk Increase (thatched bars), defined as those with increasing LSI-R total scores, reveals a 2.0 point average increase in the LSI-R total scores, and a 6.5 point average decrease in LSI-R protect scores. The differences between Criminogenic risk patterns and the change in total scores (p<.001) and protect scores (p<.001) are statistically significant.

Recidivism Rates: Figure 12 reveals that offenders who show an increase in their LSI-R total scores have a higher recidivism rate (56.1%), as compared to the recidivism rate (51.3%) of offenders who have a decrease in LSI-R total scores. The differences in recidivism rates with respect to Criminogenic risk increase or decrease are statistically significant (χ^2=3.07; p<.05).

Offenders who show an increase in their LSI-R protect scores have a lower recidivism rate (51.1%), as compared to the recidivism rate (67.8%) of offenders who have a decrease in protect scores. The differences in recidivism rates with respect to Criminogenic risk patterns are statistically significant (χ^2=24.99; p<.001).

Figure 13: Average Change in LSI-R Total and Protect Scores Among Recidivists and Non-Recidivists, All ICIS Agencies - Two-Year Follow-Up
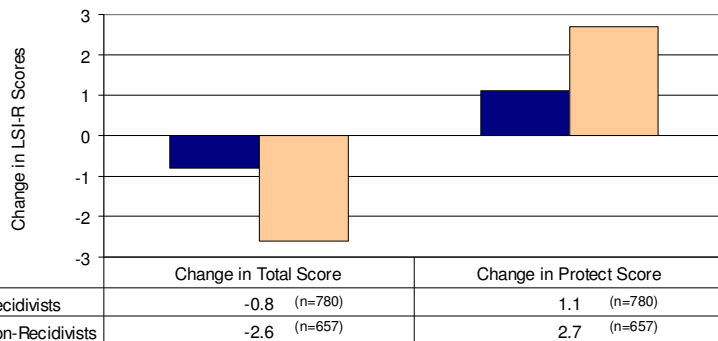
	Change in Total Score	Change in Protect Score
Recidivists	-0.8 (n=780)	1.1 (n=780)
Non-Recidivists	-2.6 (n=657)	2.7 (n=657)
Source: CJIS, CYZAP, 9.07	F=24.69; p<.001	F=26.2; p<.001

Figure 13: In terms of change in LSI-R total scores, Non-recidivists average a -2.6 point decline, while Recidivists average a -0.8 point decline. The difference in total scores between Recidivists and Non-recidivists are statistically significant (F-test=24.69; p<.001). In terms of change in LSI-R protect scores, Non-recidivists averaged a +2.7 point increase, while Recidivists averaged a +1.1 point increase. The difference in Protect scores between Recidivists and Non-recidivists are statistically significant (F-test=26.2; p<.001).

Figure 14: Average Change in LSI-R Sub-domain Percentiles Among Recidivists and Non-Recidivists, All ICIS Agencies - Two-Year Follow-Up
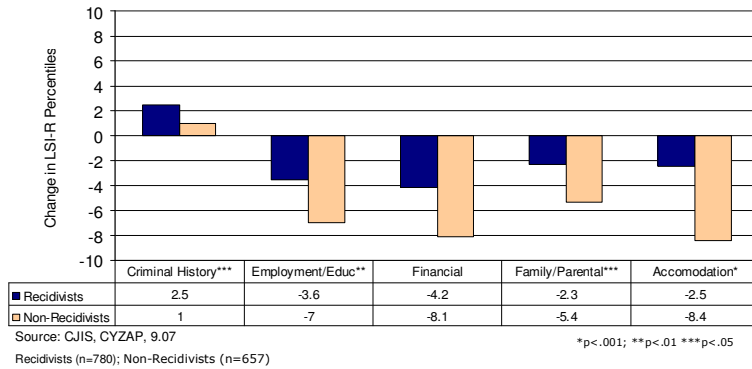
	Criminal History***	Employment/Educ**	Financial	Family/Parental***	Accomodation*
■ Recidivists	2.5	-3.6	-4.2	-2.3	-2.5
☐ Non-Recidivists	1	-7	-8.1	-5.4	-8.4

Source: CJIS, CYZAP, 9.07

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

Recidivists (n=780); Non-Recidivists (n=657)

Figure 14: The average change (∆) in LSI-R sub-domain scores reveals statistically significant differences in percentile points between Recidivists and Non-recidivists, for the following sub-domains, (except Financial): Accommodation (∆=-5.9 percentile points, F-test=12.56; p<.001) and Employment/Education (∆=-3.4 percentile point change, F-test=7.04; p<.01). These sub-domains have the largest difference in LSI-R percentiles between Recidivists and Non-recidivists. Family/Marital (∆=-3.1 percentile points, F-test=4.52; p<.01) and Criminal History ∆=-1.5 percentile point change, F-test=6.48; p<.05), also have statistically significant differences in percentiles between Recidivists and Non-recidivists.

Figure 14 reveals that all the LSI-R sub-domains (except for Criminal History) are experiencing larger risk declines for Non-recidivists, as compared to the Recidivists.

Technical Note: A negative change in percentiles means that the LSI-R sub-domain risk percentile has declined over time, from the initial to the most recent LSI-R assessment. A positive change in percentiles means that the sub-domain risk percentile has increased over time, from the initial to the most recent LSI-R assessment.

Figure 15: Average Change in LSI-R Sub-domain Percentiles Among Recidivists and Non-Recidivists, All ICIS Agencies - Two-Year Follow-Up
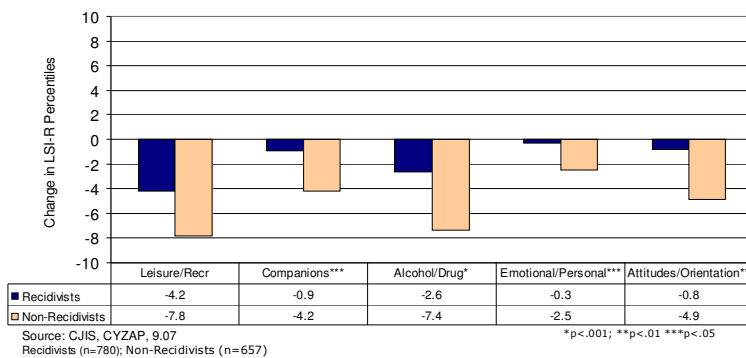
	Leisure/Recr	Companions***	Alcohol/Drug*	Emotional/Personal***	Attitudes/Orientation**
■ Recidivists	-4.2	-0.9	-2.6	-0.3	-0.8
☐ Non-Recidivists	-7.8	-4.2	-7.4	-2.5	-4.9

Source: CJIS, CYZAP, 9.07

Recidivists (n=780); Non-Recidivists (n=657)

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

Figure 15: The average change (∆) in LSI-R sub-domain scores reveals statistically significant differences in percentile points between Recidivists and Non-recidivists, for the following types of sub-domains (except for Leisure/Recreation): Alcohol/Drug (∆=-4.8 percentile points, F-test=14.20; p<.001) has the largest difference in percentiles between Recidivists and Non-recidivists. Also, Attitudes/Orientation (∆=-4.1 percentile points, F-test=6.29; p<.01), Companions (∆=-3.3 percentile points, F-test=5.31; p<.05), and Emotional/Personal (∆=-2.2 percentile points, F-test=4.02; p<.05) have statistically significant differences in percentile points between Recidivists and Non-recidivists.

Figure 15 reveals that all the LSI-R sub-domains are experiencing larger risk declines for Non-recidivists, as compared to the Recidivists.

Technical Note: A negative change in percentiles means that the LSI-R sub-domain risk percentile has declined over time. A positive change in percentiles means that the sub-domain risk percentile has increased over time, from the initial to the most recent LSI-R assessment.
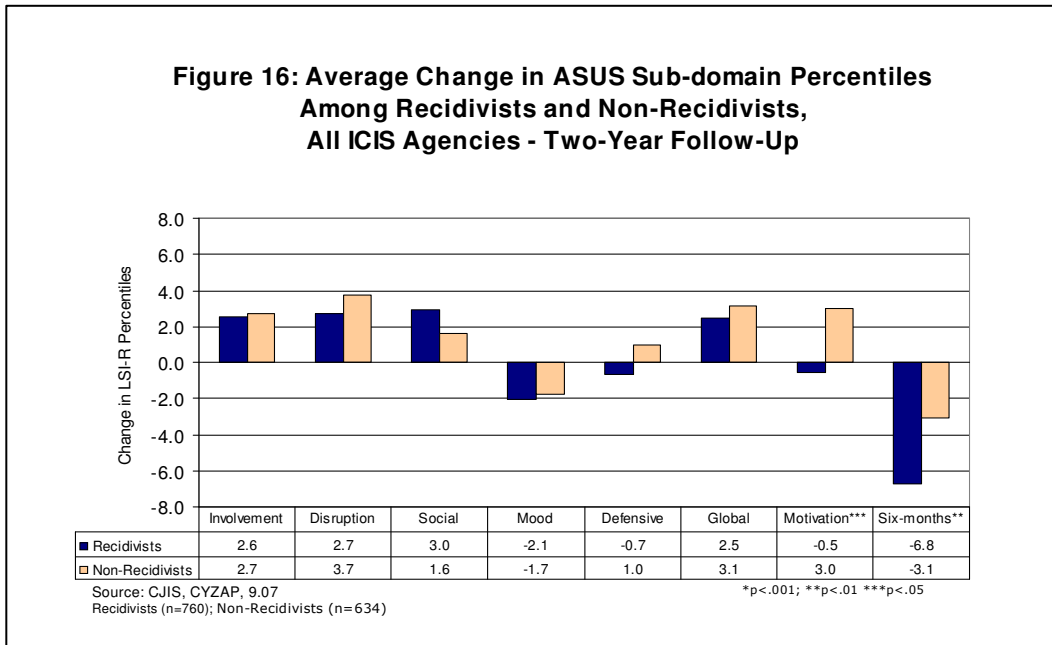
Figure 16: Average Change in ASUS Sub-domain Percentiles Among Recidivists and Non-Recidivists, All ICIS Agencies - Two-Year Follow-Up

	Involvement	Disruption	Social	Mood	Defensive	Global	Motivation***	Six-months**
Recidivists	2.6	2.7	3.0	-2.1	-0.7	2.5	-0.5	-6.8
Non-Recidivists	2.7	3.7	1.6	-1.7	1.0	3.1	3.0	-3.1

Source: CJIS, CYZAP, 9.07
Recidivists (n=760); Non-Recidivists (n=634)

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

Figure 16: The average change ∆) in ASUS sub-domain scores reveals statistically significant differences in percentile points between Recidivists and Non-recidivists, for the Six-month Involvement score (∆=+3.7 percentile points, F-test=8.09; p<.01) and Motivation (∆=+3.5 percentile points, (F-test=6.24; p<.05). The data reveal that the Six-month change in offender drug-related involvement declined, with a significantly larger decline among Recidivists (-6.8), compared to Non-recidivists (-3.1). For Motivation, there was a significant increase in percentile change among Non-recidivists (+3.0), compared to a (-0.5) change among Recidivists.

Technical Note: A negative change in percentiles (for all Sub-domains, except for Defensive and Motivation) means that the ASUS sub-domain risk percentile has declined over time. A positive change in percentiles means that the sub-domain risk percentile has increased over time. In the Defensive and Motivation sub-domains, a positive change in percentiles reflects a decline in risk patterns over time.

Summary:
The following recidivism data only reflect offenders who were administered the LSI-R/ASUS:
- Parole has the highest recidivism rate (66.0%) for the 3-year Follow-up analysis.
- Hawaii County has the highest recidivism rate (62.5%) for the 3-year Follow-up analysis.
- The data for Recidivists (2.6 percentile average point decline) reveal statistically significant larger declines in LSI-R total scores, as compared to Non-recidivists (0.8 percentile average point decline).
- The data for Non-recidivists reveal significantly larger declines than for Recidivists in the following LSI-R sub-domain percentiles; Accommodation, Financial, Employment/Education, Criminal History, Companions, Alcohol/Drug, Emotional/Personal, and Attitudes/Orientation.
- The data for Non-recidivists reveal significantly larger increase (3.5 percentile average point increase) in the Motivation ASUS sub-domain, than for Recidivists.
- The data for Recidivists reveal significantly larger decline (-3.7 percentile average point decrease) in the Six-month Involvement ASUS sub-domain, than for Non-Recidivists.

The data analyses from the following status variables reveal the highest recidivism rates:
- Employment Status - Offenders who are Unemployed for 1 – 3 months (65.5%).
- Marital Status - Offenders who are Widowed (64.3%).
- Age Range - Offenders between 35-39 years old (61.6%).

The following arrest and types of offense variables report the highest recidivism rates:
- Offenders who were First Arrested between 18-21 years old (55.6%).
- Felony Property offenses committed by Probationers (63.3%).
- Felony Property offenses committed by Parolees (71.1%).
- Felony Other offenses committed by Prisoners (55.6%).

The following criminogenic risk patterns report the highest recidivism rates:
- Offenders classified at the High risk level (62.6%).
- Offenders who show an increase in LSI-R total scores (56.1%).

Conclusions: The study results reveal that offenders who are administered the LSI-R and ASUS have higher recidivism rates, compared to the 2003 baseline recidivism rate for Probationers (48.2%). The large numbers of probationers who are administered proxies only are not included in the study sample, which would likely reduce overall recidivism to a comparable rate found in previous ICIS studies. This study also validates assertions that Non-recidivists, as compared to Recidivists, have declining risk patterns with respect to a decrease in LSI-R total score, an increase in protect score, and declining criminogenic needs with respect to the LSI-R sub-domains.