Elevating Evidence-Based Supervision Through Equity-Conscious Validation: Lessons Learned from Sonoma County SRNA Tool Validation

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What Probation Set Out To Learn

- How effectively the assessment identifies the risk for re-offending, accounting for jail time.
- What each risk classification actually means.
- How effectively the assessment prioritizes needs for case planning and risk reduction.
- How evenly the assessment performs across different groups (race, gender, age and some case types).
- How accurately and consistently staff are completing the assessments.
- What to adjust to make the assessment optimally predictive and fair.

Sonoma County's SRNA Implementation

- Sonoma County uses the Noble SRNA, a two-assessment system comprised of the Static Risk Assessment and the Offender Needs Assessment. This is very similar to the STRONG.
- The SRNA uses a very special algorithm in setting risk levels and identifying factors to prioritize in case planning: addition. There is no mystery about how the calculations work.
- The Noble SRNA is designed to be adjusted based on validation results. Cut points on the SRA can be adjusted to optimize performance.
- We had 12 years of data, with almost no changes to the process. Not necessarily a good thing, but it provided a very large, clean data set for the validation.
- SRA gives a risk level: Low, Moderate, High Property, High Drug and High Violent. Low risk are generally supervised with low intensity. The higher the risk the more intense the supervision. Once all criminal history is complete (out-of-county needs to be added), the SRA runs with the press of a button.
- ONA guides case planning by showing risk and protective factors connected with re-offense, as well as stabilization factors to address for responsivity. Completing the ONA requires an interview and review of collateral information. The process takes 45-60 minutes.

Sonoma County CCP's AB 109 Evaluation

The CCP funded six evaluation activities, targeted programming funded by the CCP. DNA Global was selected as the evaluator through a competitive process. The SRNA validation is the first of those activities.

1. ***Local Validation of the Static Risk Assessment and Offender Needs Assessment used for classification and case planning for people under Probation supervision.***
2. Race and gender disparities analysis, comparing proportions of race and gender groups at key justice system decision points.
3. Examine effectiveness of electronic monitoring in supporting arrest- free behavior and court appearance.
4. Evaluation and planning to identify and address disparities related to race, gender, and mental health status in program engagement and outcomes.
5. Process and outcome evaluation of new substance use disorder services at Probation Day Reporting Center once the program has been in operation long enough to be evaluated.
6. Implementation assessment of Probation's behavior response system.

Data Sources

Sonoma County Probation Records, 12 years (2012 - 2024), matched per unique identifier:

1. Static Risk Assessment (SRA) Instances (SRNA Scores)
2. Offender Needs Assessment (ONA) Instances (ONA domains)
3. Reoffenses Data (Rearrest only (no conviction), Rearrest with Conviction)
4. Jail Data (jail days)
5. Override Data (up, down, lateral (onto “hold” or high drug to high property or high violent)

Dependent Variables

- **Recidivism within one year** = presence of a conviction date within 365 days of the initial SRNA assessment (reoffense data)
- **Recidivism within three years** = presence of a conviction date within 1,095 days
- **General Recidivism** = presence of a conviction date anytime after their SRA assessment within the data, from initial assessment until September 2024
- **Time to Recidivism** = days spent in the community between SRNA assessment date and first rearrest date
- **Rearrest** = arrest that didn't end in conviction

Independent Variables

- **Risk Scores =** Felony Risk Score, Property Violent Risk Score, Violent Risk Score
- **Five Risk Levels** = Low, Moderate, High Drug, High Property, High Violent
- **Three Risk Levels** = Low, Moderate, High Combined
- **Overrides =** Any Override, Override Up, Override Down
- **Initial Offense Type**= Felony Drug Offense, Felony Property Offense, Felony Violent Offense, Misdemeanor, Others
- **Rearrest Type =** Arrest only or conviction
- **Mental Health Risk =** Mental Health Status and Suicide Risk

Evaluation Questions

1. Is the Sonoma County SRNA Tool being used with fidelity?
2. Are staff accurately and consistently completing the ONA assessments? Is the Sonoma County SRNA reliable across raters (inter-rater reliability) and over time (test-retest reliability)?
3. *How well does the Sonoma County SRNA Tool assess the risk of recidivism overall?*
4. *How well does the SRNA Tool perform for specific subgroups?*

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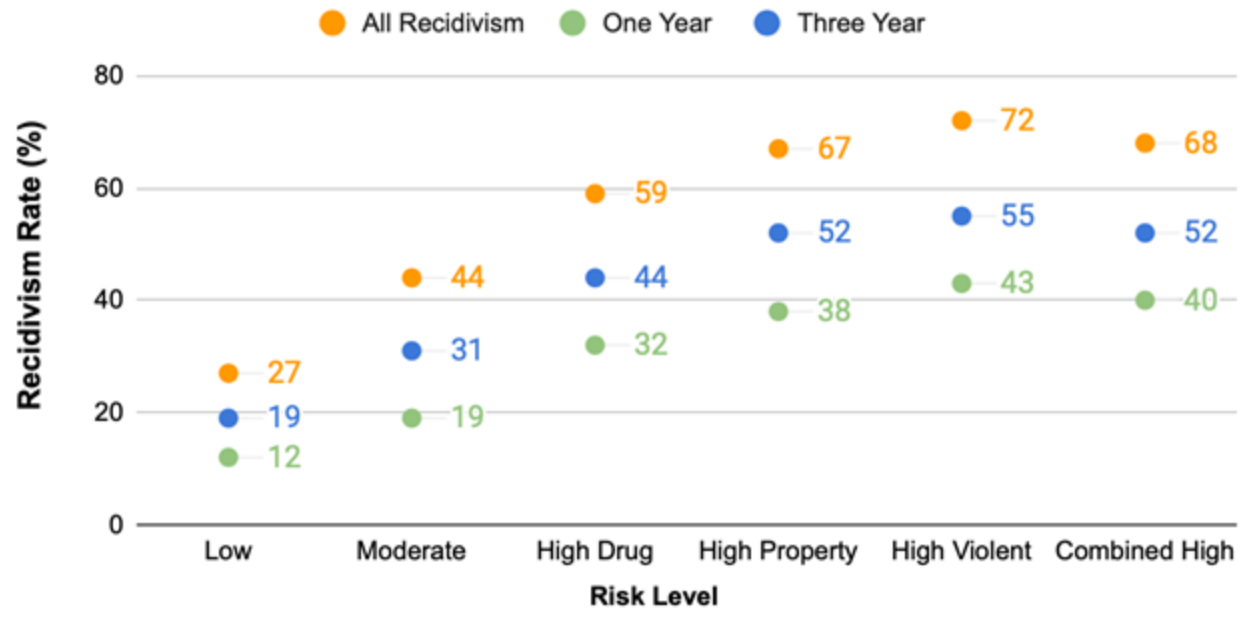
Key Findings

Is the SRNA Tool Being Used with Fidelity?

Figure 3. Recidivism Rate of SCPD Clients by Risk Level (2012-2024)



Data Source: Combined SRNA and Reoffense Data (n=19442)

- **Yes.** SRNA felony, property violent, and violent scores significantly predict risk level classification, as intended ($p < .001$)
- Risk level classification shows **moderate to strong predictive validity for general recidivism**, with higher risk levels correlating with increased recidivism rates (e.g., 27% for low-risk vs. 72% for high-risk).

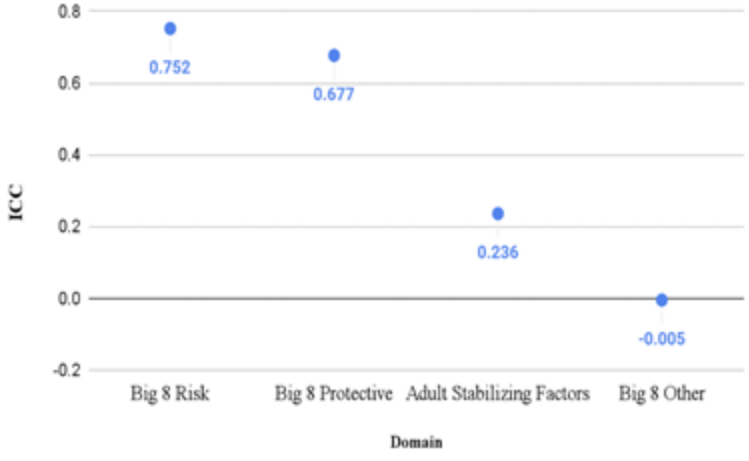
Source: Validation of the Sonoma County Adult Probation Risk and Needs Assessment Tool, 2025.

Reliability Analysis

Are staff accurately and consistently completing the ONA assessments? ONA assessment accuracy varies by domain:

- **Big 8 Risk:** Acceptable consistency (α = 0.752) and moderate reliability (ICC = 0.302–0.752).
- **Big 8 Protective:** Moderate consistency (α = 0.677) but lower reliability (ICC = 0.230–0.677).
- **Adult Stabilizing & Big 8 Other:** Poor reliability (α = 0.236, negative ICCs) but this is due to scoring mechanism not actual scorers (not used for supervision setting, just for resource decision making).

Figure 4. Reliability of ONA Domain Scores



Is the Sonoma County SRNA reliable across raters (inter-rater reliability) and over time (test-retest reliability)?

- The SRNA tool **shows high inter-rater reliability** (α = 0.900, ICC = 0.750–0.900). Variation in scores reflects true differences in individuals, not rater inconsistencies.

Source: Validation of the Sonoma County Adult Probation Risk and Needs Assessment Tool, 2025.

SRNA and Risk of Recidivism Analysis

How well does the Sonoma County SRNA Tool assess risk of recidivism overall?

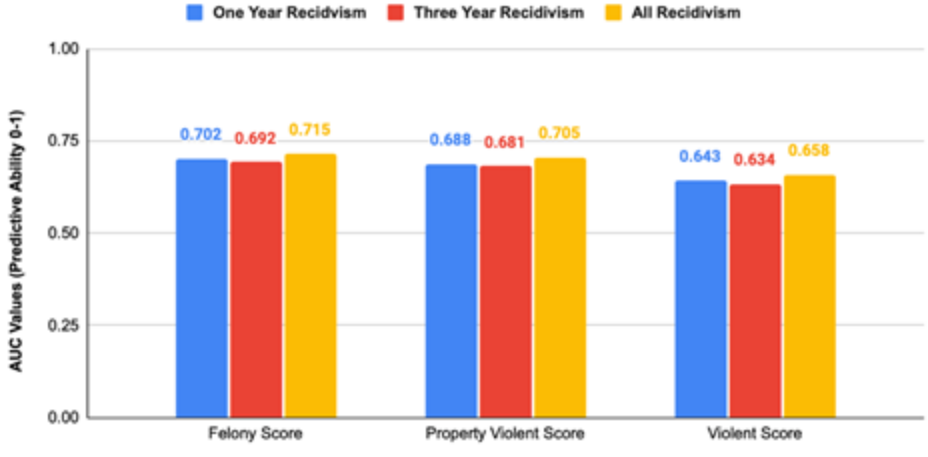
- The SRNA tool demonstrates **moderate predictive validity**. Predictive power could improve by incorporating additional risk factors and validated tools. Recidivism is multifaceted and not always predictable by static factors.

Does predictive validity vary by risk categories versus continuous score?

Predictive Ability of Risk Categories vs. Risk Scores

1. Felony Score = .702, .692, .715
2. Prop Violent Score = .688, .681, .705
3. Five Risk Levels = .683, .683, .694
4. Three Risk Levels = .676, .667, .688
5. Violent Score = .643, .634, .658

Figure 5. Predictive Ability of Risk Scores on Recidivism Rate of SCPD Clients (2012-2024)



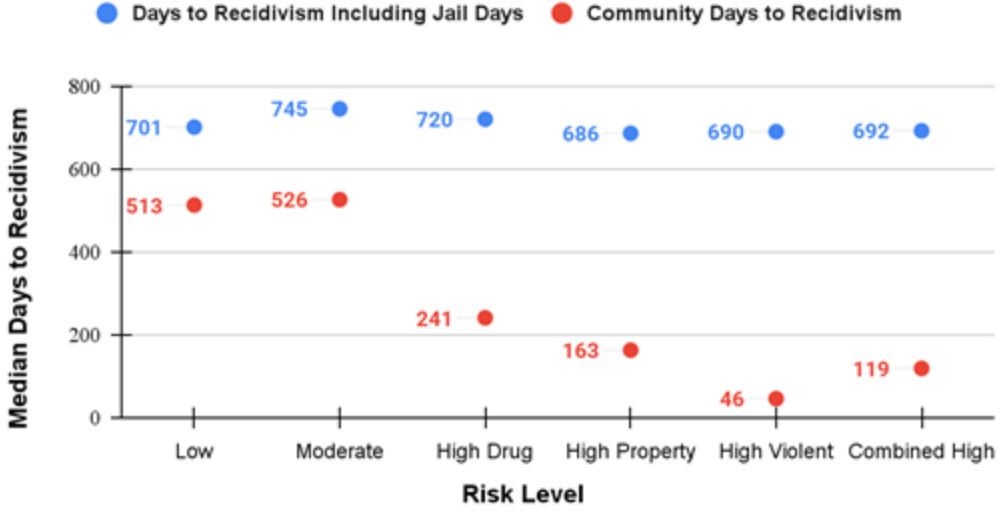
Data Source: Combined SRNA and Reoffense Data (n=19442)

SRNA and Risk of Recidivism Analysis

Does predictive validity vary by time to recidivist event, when accounting for any jail time during the supervision period?

- Examining community time on (excluding jail days), showed high-risk individuals recidivated much faster.
- While jail time may temporarily delay recidivism, it does not significantly alter the underlying risk factors or prevent recidivism.
- Removing jail time from the days till recidivism, makes the survival measurement more accurate.

Figure 6. Median Days to Recidivism for SCPD Clients (Both Models)



Data Source: Combined SRNA, ONA, and Reoffense Data (n=19442)

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Needs and Strengths on Reoffense

What need and strength areas are strongly associated with re-offense and its avoidance as outlined in the ONA?

Table 6. Factors That Predict or Protect Against Recidivism Alone

Factor and Factor Domain	B	β	Significance	Impact
F1: Antisocial Personality - Big 8 Risk	0.11	1.011	<.001	**Predictive**
F2: Antisocial Behavior - Big 8 Risk	.005	.1.005	<.001	**Predictive**
F3: Criminal Thinking - Big 8 Risk	.013	1.013	<.001	**Predictive**
F4: Criminal Associates - Big 8 Risk	.011	1.011	<.001	**Predictive**
F5: Family - Big 8 Risk	.022	1.022	<.001	**Predictive**
F6: Employment/School - Big 8 Risk	.015	1.015	<.001	**Predictive**
F8: Substance Abuse - Big 8 Risk	.014	1.014	<.001	**Predictive**
F9: Antisocial Personality - Big 8 Protect	-0.008	.992	<.001	Protective
F10: Antisocial Behavior - Big 8 Protect	-0.005	.995	<.001	Protective
F11: Criminal Thinking - Big 8 Protect	-0.008	.992	<.001	Protective
F12: Criminal Associates - Big 8 Protect	-0.010	.990	<.001	Protective
F13: Family - Big 8 Protect	-0.009	.991	<.001	Protective
F14: Employment/School - Big 8 Protect	-0.015	.985	<.001	Protective
F16: Substance Abuse - Big 8 Protect	-0.008	.992	<.001	Protective
F18: Antisocial Behavior - Big 8 Other	.003	1.003	<.001	**Predictive**
F21: Family - Big 8 Other	-0.003	.997	.331	Not Sig
F22: Employment/School - Big 8 Other	.005	1.005	.007	**Predictive**
F24: Substance Abuse - Big 8 Other	.035	1.035	<.001	**Predictive**
F50: Mental Health Issues - Adult Stability	.006	1.006	<.001	**Predictive**
F52: Homeless/Runaway - Adult Stability	.014	1.014	<.001	**Predictive**
F53: Current Abuse/Neglect- Adult Stability	.009	1.009	<.001	**Predictive**
F54: Medical Issues - Adult Stability	.006	1.006	<.001	**Predictive**

Source: Validation of the Sonoma County Adult Probation Risk and Needs Assessment Tool, February 2025.

SRA Cut Points

Should we reinforce or adjust the SRA risk level cut points to classify people most effectively, such that intensity of supervision aligns with risk to reoffend?

- Adjusting SRA cutoff scores could improve accuracy for both predicting general recidivism, one-year, three-year and offense specific risk.

- The most precise cut points also differ for gender and race (see Q4 results).

Table 11. Specific Cut Points for Specific Offenses are noted in the table below.

Classification Level	Current Cut Point	Ideal Cut Point
High Violent (Violent Offense)	96	82.5
High Property (Property Offense)	66	63.5
High Drug (Drug Offense)	66	61.5
Moderate Risk (Property/Violent Offense)	50	58.5
Moderate Risk (Felony Offense)	50	50.5

Source: Validation of the Sonoma County Adult Probation Risk and Needs Assessment Tool, February 2025.

SRNA and Race

- Most accurate for White and "Other" racial groups (Asian, Pacific Islander, American Indian, etc).
- The “most precise cutoff” differed between racial groups i.e., Black Individuals recidivate with higher scores than White Individuals potentially leading to overclassification.

Table 13. Predictive Validity by Subgroups (Race)

General Recidivism	*White*	*Ideal Cut Off*	*Black*	*Ideal Cut Off*	*Hispanic*	*Ideal Cut Off*	*Other*
Felony Score	AUC = .727	51.5	AUC = .688	64.5	AUC = .696	51.5	AUC = .758
Property Violent Score	AUC = .715	54.5	AUC = .673	62.4	AUC = .696	55.5	AUC = .753
Violent Score	AUC = .669	76.5	AUC = .665	87.5	AUC = .642	77.5	AUC = .691
One Year Recidivism							
Felony Score	.AUC = .708	54.5	AUC = .679	64.5	AUC = .697	51.5	AUC = .725
Property Violent Score	AUC = .691	58.4	AUC = .663	67.5	AUC = .689	55.5	AUC = .718
Violent Score	AUC = . 647	78.5	AUC = .633	86.5	AUC = .643	84.5	AUC = .638

Source: Validation of the Sonoma County Adult Probation Risk and Needs Assessment Tool, February 2025.

SRNA and Gender

Are the SRA and ONA assessments' effective with various race, gender and age groups? Are adjustments needed to make it more effective?

- Performs better for men and ideal cut points differ (somewhat drastically) for men and women.

Table 12. Predictive Validity by Subgroups (Gender)

			Ideal Risk Score Cut Offs	
General Recidivism	*Female*	*Male*	*Female*	*Male*
Felony Score	AUC = .696	AUC = .716	47.5	51.5
Property Violent Score	AUC = .672	AUC = .710	49.5	54.4
Violent Score	AUC = .633	AUC = .681	44.5	77.5
One Year Recidivism				
Felony Score	AUC = .699	AUC = .702	47.5	59.6
Property Violent Score	AUC = .683	AUC = .688	50.5	61.5
Violent Score	AUC = .629	AUC = .64	45.5	85.5

Data Source: Combined SRNA, ONA, and Reoffense Data (n=19442)

Source: Validation of the Sonoma County Adult Probation Risk and Needs Assessment Tool, February 2025.

SRNA and Age

Are the SRA and ONA assessments' effective with various race, gender and age groups? Are adjustments needed to make it more effective?

- Works better for older adults (likely because they have more history to base risk off of).
- Cut-offs vary: Younger offenders require higher risk scores to be classified as high risk, while older offenders re-offend at lower scores.

Table 14. Predictive Validity by Subgroups, ROC Analyses, and Ideal Cut Offs (Age)

General Recidivism	*17-19*	*20-29*	*30-39*	*40-49*	*50-50*	*60+*
Felony Score	AUC = .602	AUC = .700	AUC = .726	AUC = .717	AUC = .720	AUC = .745
Property Violent Score	AUC = .586	AUC = .683	AUC = .720	AUC = .713	AUC = .714	AUC = .728
Violent Score	AUC = .570	AUC = .636	AUC = .652	AUC = .665	AUC = .673	AUC = .715
Ideal Cut Off Felony	50.5	51.5	51.5	50.5	43.5	35.5
Ideal Cut Off Prop Viol	60.5	60.5	53.5	53.5	39.5	24.5
Ideal Cut Off Violent	84.5	84.5	77.5	74.5	60.5	50.5
One Year Recidivism						
Felony Score	.559	.702	.715	.687	.718	.746
Property Violent Score	.534	.693	.716	.686	.717	.723
Violent Score	.476	.655	.646	.649	.676	.720
Ideal Cut Off Felony	53.5	58.5	59.5	51.5	46.5	38.5
Ideal Cut Off Prop Viol	64.5	60.5	54.4	55.5	44.5	24.5
Ideal Cut Off Violent	57	86.5	77.5	74.5	61.5	50.5

Draft

SRNA and Mental Health

How do the tools perform when there is a presence of mental health need?

- Mental health (like suicide history) increases recidivism risk as seen by significance level.
- AUCs are lower than the Risk Scores or Risk Levels alone.
- The tool is more accurate in its predictive ability when mental health is not considered in the scoring mechanism.
- **Key Takeaway:** Mental health matters for support plans, not as the main focus of risk assessment.

Table 14. Effect of Mental Health Factors on Recidivism and Tool Validity

	B	β	Significance	AUC
F51: Mental Health - Adult Stability	0.006	1.006	< .001	.532
Any Mental Health (AMH) Issue	0.116	1.124	0.003	.514
Risk Level * AMH	0.084	1.087	< .001	.571
Felony Score * AMH	0.004	1.004	< .001	.573
Property Violent Score * AMH	0.005	1.005	< .001	.570
Violent Score * AMH	0.003	1.003	< .001	.552
Risk Level * Suicide Attempt	0.081	1.085	< .001	.574
Felony Score * Suicide Attempt	0.007	1.007	< .001	.581
Property Violent Score * Suicide Attempt	0.008	1.008	< .001	.580
Violent Score * Suicide Attempt	0.005	1.005	< .001	.559

Source: Validation of the Sonoma County Adult Probation Risk and Needs Assessment Tool, February 2025.

Predictive Validity by Offense

Does predictive validity vary by type of offense?

- Some felony offenses are correlated with future recidivism but prior offense type should not be the only consideration when predicting risk.

	General Recidivism		One Year Recidivism	
	β	AUC	β	AUC
Felony Prop	1.422	0.596	1.401	0.611
Felony Drug Offense	1.289	0.534	1.275	0.535
Felony Weapon	1.573	0.533	1.759	0.545
Felony DV	1.316	0.511	1.395	0.514
Felony Robbery	1.289	0.51	1.384	0.514
Homicide Offense	.498	0.497	.629	0.498
Felony Sex Offense	.732	0.493	.949	0.498

Preliminary Recommendations

1. **Calibrate Tool Scoring per Racial and Gender Disparities**

- **Racial Equity:**
  - Adjust these scoring cutoffs to ensure more equitable risk classification across all racial groups, at the same cut-point.
  - Regularly check outcomes to ensure fairness.
- **Gender Sensitivity:**
  - Considering lowering cutoff points for female clients (e.g., reducing Violent risk cut off from **77.5 to closer to 44.5** for women) *OR*
  - Use supplementary risk assessments for female clients to capture risk factors not well-predicted by the SRNA tool.

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Preliminary Recommendations

2. Continue to Use Specialized Tools for Specific Offense Categories

- The SRNA tool exhibits lower predictive accuracy for sex crimes, domestic violence, and DUIs (performing no better than random chance).
- Keep using separate, specialized tools for these crimes to predict risk better.

3. Enhance the Offender Needs Assessment (ONA) for Better Resource Allocation

- Big 8 Risk and Big 8 Protective domains demonstrate acceptable reliability.
- Adult Stabilizing and Big 8 Other domains should be used for needs assessment and resource provision only (they already are).
- Integrate protective ONA factors like employment stability and housing into individualized supervision plans to reduce recidivism risk.

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Preliminary Recommendations

4. Integrate Dynamic Risk Factors into SRNA for Enhanced Predictive Power:

- Recent employment changes
- Family stability
- Substance abuse patterns

5. Differentiate Between Short-Term (One-Year) and Long-Term (General) Risk Predictions

Use a higher risk threshold for one-year recidivism predictions to prioritize intervention:

- Felony Score One-Year Recidivism Cutoff: **54.5**
- Property/Violent Score One-Year Cutoff: **58.5**

Use slightly lower thresholds for general recidivism to improve long-term predictions:

- Felony Score General Recidivism Cutoff: **51.5**
- Property/Violent Score General Cutoff: **54.5**

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Preliminary Recommendations

6. Reassess the Use of Overrides in Risk Classifications

- Monitor and standardize override decisions and evaluate how often POs override SRA scores while emphasizing documentation of justifications behind these decisions - Most are due to holds but some had no justification noted.
- Limit downward overrides (lowering risk levels) due to a 58% one-year recidivism rate.

7. Implement Continuous Training and Feedback Loops

- Actual Outcomes and Feedback
  - Use **feedback loops** where POs can review their assessments against short and long-term recidivism outcomes to improve future scoring accuracy.

Preliminary Recommendations

8. Tailor Interventions Based on Offender Subgroup Characteristics

- Design targeted intervention programs based on subgroup characteristics, such as age, gender, or offense type. For example:
  - Implement gender-responsive interventions for female offenders.
  - Assure programs focused on addressing substance abuse, homelessness, and mental health issues for high-risk groups, as these factors significantly predict recidivism.

9. Account for the Effect of Jail Time on Recidivism Risk

- Recognize that jail artificially extends survival time and does not reduce actual risk.
- Develop risk-adjusted supervision strategies for individuals reentering the community to reflect the delayed but not diminished recidivism risk.

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Next Steps for SCPD

- Using existing data, run simulations with cut point adjustments and check the results.
- Work with Noble to make the adjustments.
- Monitor the results and adjust as needed.
- Implement an Assessment that performs better with Women – likely the Women's Risk Need Assessment (WRNA).

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Questions & Comments?

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