



# **Pretrial Risk Assessment Tool Validation**

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PRETRIAL PILOT PROGRAM

COUNTY OF SACRAMENTO

JULY 2022



**JUDICIAL COUNCIL  
OF CALIFORNIA**

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OPERATIONS AND PROGRAMS DIVISION  
CRIMINAL JUSTICE SERVICES

## Impact of the COVID-19 PANDEMIC on the Pretrial Pilot Program

The Budget Act of 2019 requires that Pretrial Pilot Program courts collaborate with local justice system partners to make data available to the Judicial Council as required to measure the outcomes of the pilots. Senate Bill 36 (Hertzberg; Stats. 2019, ch. 589) established tool validation and reporting requirements for pretrial services agencies using a pretrial risk assessment tool; these requirements are mandatory for all pilot projects.

Throughout much of period covered by this report, the United States experienced the COVID-19 global pandemic. On March 4, 2020, Governor Gavin Newsom declared a state of emergency to protect public health and safety, and formalized efforts by the California Department of Public Health, California Health and Human Services Agency, Governor's Office of Emergency Services, and other state agencies and departments to mitigate this public health crisis. On March 19, 2020, orders from the Governor and the California Department of Public Health directed all California residents to stay home except when performing essential jobs or shopping for necessities.

On March 27, 2020, the Governor issued an order that gave the Judicial Council of California and the Chief Justice authority to adopt emergency rules and take other necessary actions to respond to the COVID-19 health and safety crisis. The Judicial Council adopted various emergency measures to support courts in providing essential services while helping to safely reduce jail populations. These measures, together with policies adopted by individual courts in response to the crisis, have impacted the population eligible for participation in the Pretrial Pilot Program.

On April 6, 2020, the Judicial Council adopted a statewide emergency bail schedule that set presumptive bail at \$0 for most misdemeanors and lower-level felonies, with specified exceptions, but retained court discretion in setting bail. The emergency rule was intended to safely reduce jail populations and protect justice system personnel and public health while promoting consistency in pretrial release and detention throughout the state. The Judicial Council repealed the emergency bail schedule rule effective June 20, 2020, but encouraged courts to adopt local emergency bail schedules with \$0 bail or significantly reduced bail levels to meet their county's public health and safety conditions.

As a result of local criminal justice system policies and the emergency bail schedule, pilot courts observed significant reductions in booking rates and jail populations during this time. Under these temporary emergency policies, many individuals who would otherwise have been eligible for program participation were cited and released in the field or released on \$0 bail upon booking without undergoing a risk assessment. Crime and arrest patterns were also likely affected by COVID-19 and shelter-in-place orders. Criminal case dispositions also slowed during this time period.

Therefore, the population of program participants is very likely different than would be seen in the absence of the pandemic, both in terms of reduced numbers and composition.

## SACRAMENTO PSA VALIDATION INTRODUCTION

SB 36 requires each pretrial services agency that uses a pretrial risk assessment tool to validate the risk assessment tool used by the agency by July 1, 2021, and regularly thereafter. This pretrial risk assessment tool validation report is the second validation of the Public Safety Assessment tool in Sacramento. The study examines data from covering the period from October 21, 2019 to January 1, 2022.

## LEGISLATIVE MANDATE

This report fulfills the legislative mandates of the Budget Act of 2019 (Assem. Bill 74; Stats. 2019, ch. 23), and Senate Bill 36 (Stats. 2019, ch. 589). In AB 74, the Legislature directed the Judicial Council to administer pretrial projects in the trial courts. The goals of the Pretrial Pilot Program, as set by the Legislature, are to:

- Increase the safe and efficient pre-arraignment and pretrial release of individuals booked into jail;
- Implement monitoring practices with the least restrictive interventions necessary to enhance public safety and return to court;
- Expand the use and validation of pretrial risk assessment tools that make their factors, weights, and studies publicly available; and
- Assess any disparate impact or bias that may result from the implementation of these programs.

SB 36 requires each pretrial services agency that uses a pretrial risk assessment tool to validate the risk assessment tool used by the agency by July 1, 2021, and regularly thereafter, and to make specified information regarding the tool, including validation studies, publicly available.

AB 74 provided funding to the Judicial Council “for costs associated with implementing and evaluating the Pretrial Pilot Program, including, but not limited to “....(e) Assisting the pilot courts in validating their risk assessment tools.” This report, in accordance with [AB 74](#) and [SB 36](#), provides information on the validation of the PSA pretrial risk assessment tool used by Sacramento.

SB 36 requires pretrial risk assessment tools to be validated. SB 36 defines “validate” as follows:

*“Validate” means using scientifically accepted methods to measure both of the following:*

*(A) The accuracy and reliability of the risk assessment tool in assessing (i) the risk that an assessed person will fail to appear in court as required and (ii) the risk to public safety due to the commission of a new criminal offense if the person is released before the adjudication of the current criminal offense for which they have been charged.*

*(B) Any disparate effect or bias in the risk assessment tool based on Gender, Race, or ethnicity.<sup>1</sup>*

## VALIDATION METHODS

Descriptive statistics are presented, exploring basic features of the data such as demographics and showing the overall distributions of arrest offenses and adverse outcomes. The distributions of risk scores are shown in groupings of risk level defined by the tool developer.

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<sup>1</sup> Sen. Bill 36, § 1320.35(b)(4).

A Receiver Operating Characteristic (ROC) curve model has been used to provide the Area Under the Curve (AUC) statistic for each outcome of interest. The outcomes of interest are:

- Failure to appear (FTA)
- New arrest
- New filing
- New conviction
- New violent arrest

The AUC value is a single number that represents the ability of the tool to differentiate between individuals at lower or higher risk across the range of the tool. The AUC is calculated for each outcome overall, and separately for each gender and race/ethnicity group to examine whether the ability of the tool to differentiate individuals by risk differs by gender or race/ethnicity.

For criminal justice risk assessments, a common metric for evaluating AUC values is derived from Desmarais and Singh (2013),<sup>2</sup> who defined AUC values less than 0.55 as poor, 0.55-0.63 as fair, 0.64-0.70 as good, and 0.71-1.00 as excellent.

The observed rate of adverse outcomes at each score is presented. The pattern of these rates is an indicator of the accuracy of the tool, showing whether risk scores predict monotonic increasing failure rates for each outcome of interest.

Logistic regression is used to test whether the risk scores statistically significantly predict the likelihood of each outcome of interest and whether any differences in outcomes by risk level across gender or race/ethnicity are statistically significant. Statistical significance is a technical term used in analyses to indicate that it is very unlikely that a result or difference occurred by chance. Statistical significance does not necessarily specify the size of the result or difference.

To measure any predictive bias in the tools, fitted curves of the rates of adverse outcomes at each score are shown separately by gender and race/ethnicity groups. Logistic regression has been used to test whether the likelihood of each outcome of interest by risk level differs across gender or race/ethnicity groups in a manner that is statistically significant.

The risk scores presented in this report are calculated using a scoring scheme designed by the tool developers. The tool takes into account aspects of an individual's criminal history, current criminal offense, history of failures to appear in court, age, and other factors (see Appendix A, Tables A1 and A2 for the factors and weights specific to the FTA, NCA, and NVCA subscales of the PSA). Gender and race are not used to calculate risk scores.

This report analyzes risk scores and associated outcomes for individuals who were released from custody pretrial. Individuals may have been released in a variety of ways by a Sheriff or judge, including on bail. This report does not look at judicial decision-making or judges' use of the risk assessment tool.

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<sup>2</sup> Desmarais, S. L., & Singh, J. P. (2013). Risk assessment instruments validated and implemented in correctional settings in the United States. *Lexington, KY: Council of State Governments.*

Further research is needed to analyze the elements that may be driving the observed differences and whether there are data-driven modifications to the tool's risk factors or weights that can further improve the predictive power of the tool.

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## DEFINITIONS

- **Pretrial period** starts at the booking of an individual at the jail and ends at the resolution of any and all cases associated with that booking
- **Failure to appear** (FTA) is measured using court records documenting the issuance of a bench warrant for FTA during the pretrial period.
- **New arrest** is any new arrest during the pretrial period reported to the California Department of Justice (CA DOJ) or a new booking within the county that was recorded by the jail.<sup>3</sup>
- **New filing** is any new arrest during the pretrial period that results in charges filed with the court and reported to the CA DOJ<sup>4</sup>.
- **New conviction** is any new arrest during the pretrial period that results in a conviction reported to the CA DOJ during the data collection period<sup>5</sup>.
- **New violent arrest** is any new arrest during the pretrial period for an offense on the list of PSA Pretrial Pilot consensus violent offense list, which includes felonies and misdemeanors of a violent nature. For the full list of offenses see Appendix B.

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## VALIDATION SAMPLE SIZES

For purposes of this report, general validation results are shown when the sample size was greater than 200. For analyses of predictive bias by race/ethnicity and gender, subgroup results are shown when the overall sample was at least 1,000 and each subgroup size was greater than 200. Sample sizes smaller than these may not produce reliable results. Sacramento meets sample size requirements for both general validation and analyses of predictive bias.

## DATA DESCRIPTION AND LIMITATIONS

The data set for the pretrial risk assessment tool validation was created using data from the court and two agencies in the county, as well as statewide data from the California Department of Justice.

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## DATA SOURCES

- **Jail booking data:** Sacramento sheriff's office provided information on all individuals booked into local county jail, including booking dates, charges, and releases.
- **Probation data:** Sacramento probation department performed pretrial assessment services and provided pretrial risk assessment information, including assessment dates, scores, and recommendation for those assessed.

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<sup>3</sup> New criminal offenses are defined in four ways to capture different outcomes of interest. All new criminal offense indicators are measured using data from the California Department of Justice (CA DOJ).

<sup>4</sup> CA DOJ records on arrests are likely more complete than CA DOJ records on court filings and dispositions. Court reporting to the CA DOJ is incomplete.

<sup>5</sup> Because of the short timeframe of the data collection period and delays in court reporting to the CA DOJ, new convictions may not be a complete measure of all arrests during the pretrial period that resulted in a conviction.

- **Court case data:** Sacramento superior court provided court case information, including pretrial disposition dates and the issuance of warrants for failures to appear for those with felony or misdemeanor criminal filings.
- **California Department of Justice Data (CA DOJ) data:** The California Department of Justice provided arrest and disposition data, including out-of-county filings, for booked defendants.

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## DATE RANGE

The time period for this validation extends from October 21, 2019 to January 1, 2022.

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## DATA LINKING AND FILTERING

Data were viewed based on a data sharing agreement, and data views were joined and standardized to create a validation data frame of bookings with associated pretrial risk assessment information, relevant court case information, and outcomes during the pretrial period. Local justice agencies keep separate data systems, and not all data could be matched across agencies. Due to the limited timeframe of the data and the effects of COVID-19 on court operations, data are likely skewed towards dispositions that occur in a shorter time frame compared to all dispositions, and many individuals who were released pretrial may not have had final dispositions during the validation time frame and therefore could not be included in the analysis. The only bookings included in the validation analysis were those for which the individual was released pretrial and there was a final disposition associated with the booking because outcomes during the pretrial period were a primary interest of this analysis and also so that the full pretrial period could be observed. This report refers to each booking linked with an associated assessment and completed pretrial period as a “pretrial observation.”

Table 1 shows the number of assessments at each stage of filtering, and the type of validation that will be presented based on the number of pretrial observations.

**Table 1. Counts of all assessments at each stage of filtration**

Tool Name	County	Assessments	Assessed Bookings	Pretrial Complete	Validation Dataset	Validation Type
PSA	Sacramento	29,446	30,853	21,907	10,476	General + Bias

## DESCRIPTIVE STATISTICS

### DEMOGRAPHICS

Table 2 provides the number of assessments in the evaluation dataset, the racial/ethnic and gender makeup, and the median age. Black and White racial/ethnic groups make up nearly equal percentage shares (37% and 36%, respectively) of the population being evaluated. The Hispanic racial/ethnic group make up 20% of the evaluation data set. The sample is primarily male (83%), and the median age is 35 years old.<sup>6</sup>

**Table 2. Demographic Profile of Evaluation Data Frame**

County	Total	Race/Ethnicity (%)				Gender (%)		Median Age
		Black	White	Hispanic	Other	Male	Female	
Sacramento	10,476	37	36	20	7	83	17	35

### ARREST OFFENSES

As shown in Table 3, felony arrests represented the majority of bookings in the evaluation dataset (93%) while misdemeanor arrests were a smaller share (6%). Violent offenses<sup>7</sup> represented 38% of bookings in the dataset while property offenses were 31% and drug offenses were 26%. DUI offenses were 9% of bookings in the dataset, while DV offenses made up 19% of bookings in the evaluation dataset.

**Table 3. Distribution of Arrest Offense Type in Evaluation Data Frame**

County	Felony	Misdemeanor	Violent	Property	Drug	DUI	DV
Sacramento	93	6	38	31	26	9	19

### ADVERSE OUTCOMES

Table 4 shows several different adverse outcomes that were measured during the pretrial period from pretrial release to disposition. Failure to appear (FTA), measured as bench warrants issued for FTA

<sup>6</sup> Non-binary, other, and unknown genders represented less than 0.1% of the bookings in the evaluation dataset.

<sup>7</sup> Violent offenses as defined by the pilot consensus PSA Violent Offense List, see Appendix B. These include both felonies and misdemeanors that are violent in nature.

during the pretrial period, was recorded for 26.5% of pretrial observations. New arrests during the pretrial period were recorded for 37.3% of pretrial observations. New arrests during the pretrial period resulting in filed charges were recorded for 16.2% of pretrial observations, and new arrests during the pretrial period resulting in convictions were recorded for 11.7% of pretrial observations.<sup>8</sup> New violent arrests<sup>9</sup>—including felony and misdemeanor arrests for offenses of a violent nature—were recorded during the pretrial period for 11.2% of pretrial observations.

**Table 4. Rates of Pretrial Misconduct in Evaluation Data Frame**

County	FTA	New Arrest	New Filing	New Conviction	New Violent Arrest
Sacramento	26.5	37.3	16.2	11.7	11.2

## CONDITIONS OF MONITORING/SUPERVISION

Data on supervision conditions were collected from the county probation department. However, data quality was low and was therefore not used in the analyses. Supervision conditions may have affected outcomes and may have been applied differentially according to risk score which could confound results. Further research is needed to determine the impact of supervision conditions and to separate out the efficacy of the tools from the efficacy of supervision conditions.

## SACRAMENTO PSA VALIDATION

### GENERAL VALIDATION

Figure 1 shows the full distribution of risk levels for individuals in Sacramento in the evaluation dataset assessed with the PSA tool, for each PSA subscale. The PSA FTA subscale was designed to predict the risk of failure to appear in court. The PSA NCA scale was designed to predict the risk of a new arrest, and the PSA NVCA flag was designed to predict new arrest for a violent crime. As determined by the tool developers, the FTA and NCA subscales are each divided into 6 risk levels with 1 representing the lowest risk and 6 the highest, and the NVCA subscale is divided into a binary flag, such that a flag represents higher risk of new violent crime and no flag represents lower risk of new violent crime.<sup>10</sup> Lower scores were more common for the FTA subscale, mid-range scores were more common for the NCA subscales, and 23% of assessed individuals received a NVCA flag.

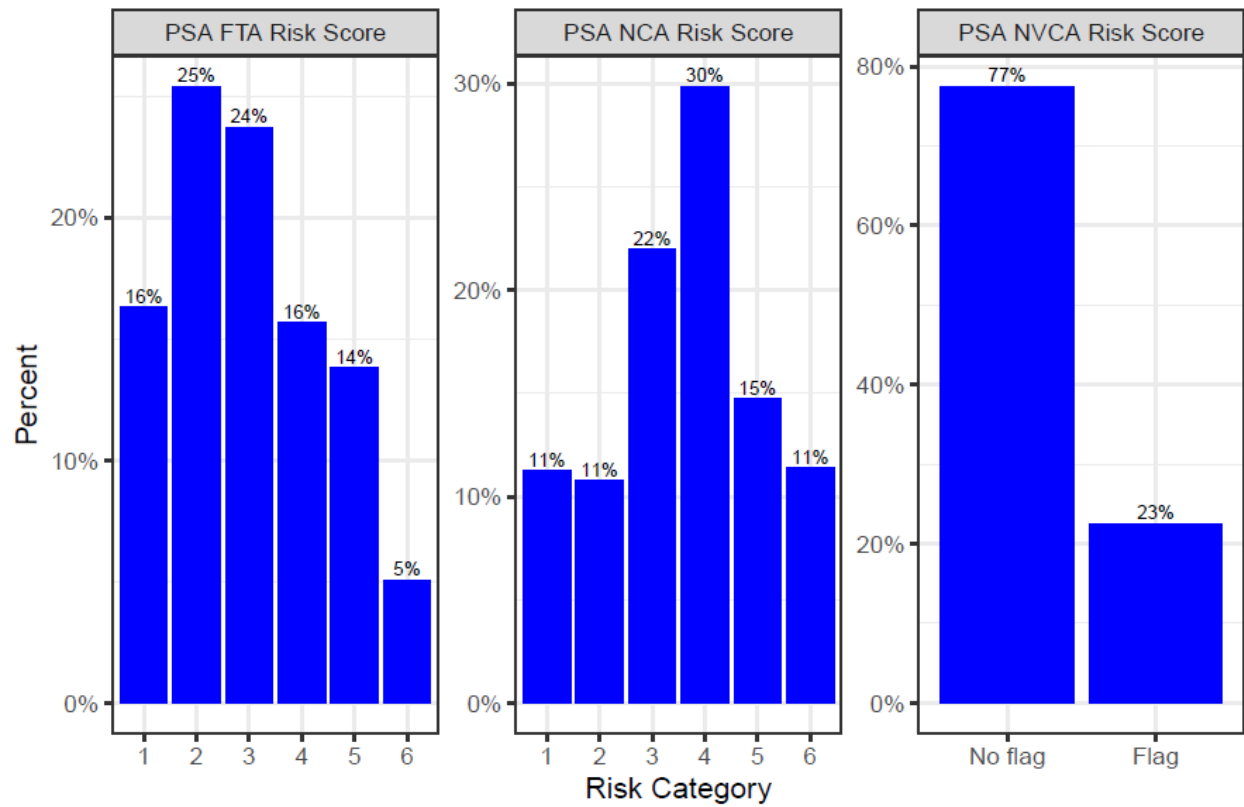
<sup>8</sup> New arrest, new filing, and new conviction data are measured using CA DOJ data. New arrests and new violent arrests are reported to the CA DOJ from arresting agencies, whereas new filings and new convictions are reported to the CA DOJ from courts. The CA DOJ may have incomplete records of filings and convictions from the courts because of difficulties or delays in reporting, and not all new arrests during the pretrial period may have been resolved during the data collection period.

<sup>9</sup> New violent arrests are defined by the PSA Violent Offense List (see Appendix B).

<sup>10</sup> The NVCA subscale is scaled to a 1-6 scale, and then scores 1-3 are categorized as no flag and scores 4-6 are categorized as flagged.



**Figure 1. Distribution of PSA FTA, NCA and NVCA Risk Scores**



**Table 5. Counts of Individuals by PSA FTA, NCA and NVCA Risk Scores**

PSA FTA Risk Score	Total
1	1,709
2	2,661
3	2,486
4	1,642
5	1,446
6	532

PSA NCA Risk Score	Total
1	1,177
2	1,129
3	2,303
4	3,128
5	1,544
6	1,195

PSA NVCA Risk Score	Total
No flag	8,115
Flag	2,361

Table 6 shows the AUC values for the PSA scales, using the full range of risk scores, for each outcome of interest. The AUC value is a single number that represents the ability of the tool to differentiate between individuals who are lower or higher risk across the range of the tool. For criminal justice risk assessments, a common metric for evaluating AUC values is derived from Desmarais and Singh (2013),<sup>11</sup> who defined AUC values less than 0.55 as poor, 0.55-0.63 as fair, 0.64-0.70 as good, and 0.71-1.00 as excellent. By these definitions, the AUC value for the FTA outcome falls in the good range, and all other outcomes have AUC values in the fair range.

The 95% confidence interval is also shown, which represents the range of AUC estimates the true AUC value is statistically 95% likely to fall between. A smaller range indicates that given the size of the sample and pattern of the data, the AUC can be estimated with greater precision. None of the 95% confidence intervals fall below the fair range.

<sup>11</sup> Desmarais, S. L., & Singh, J. P. (2013). Risk assessment instruments validated and implemented in correctional settings in the United States. *Lexington, KY: Council of State Governments.*

**Table 6. AUC values for Outcomes of Interest**

Risk Score	Outcome	AUC	CI (95%)
PSA FTA	FTA	0.671	0.659-0.682
PSA NCA	New Arrest	0.628	0.617-0.639
PSA NCA	New Filing	0.608	0.594-0.622
PSA NCA	New Conviction	0.599	0.583-0.615
PSA NVCA	New Violent Arrest	0.586	0.572-0.601

*Note:*

N = 10476

Figure 2 shows the rate of various adverse outcomes during the pretrial period at each risk level of the PSA, using each of the PSA subscales for the relevant outcomes. The PSA-FTA risk scale is used for the outcome of FTA. The PSA-NCA risk scale is used for the outcomes of new arrest, new filing, and new conviction. The PSA-NVCA risk flag is used for the outcome of new violent arrest. For each outcome of interest,<sup>12</sup> observed rates of the outcome increase as the assessed risk level increases. This pattern is consistent across outcomes and risk levels.

<sup>12</sup> See validation methodology section for definitions of each outcome of interest.

**Figure 2. PSA Outcomes by Risk Category**

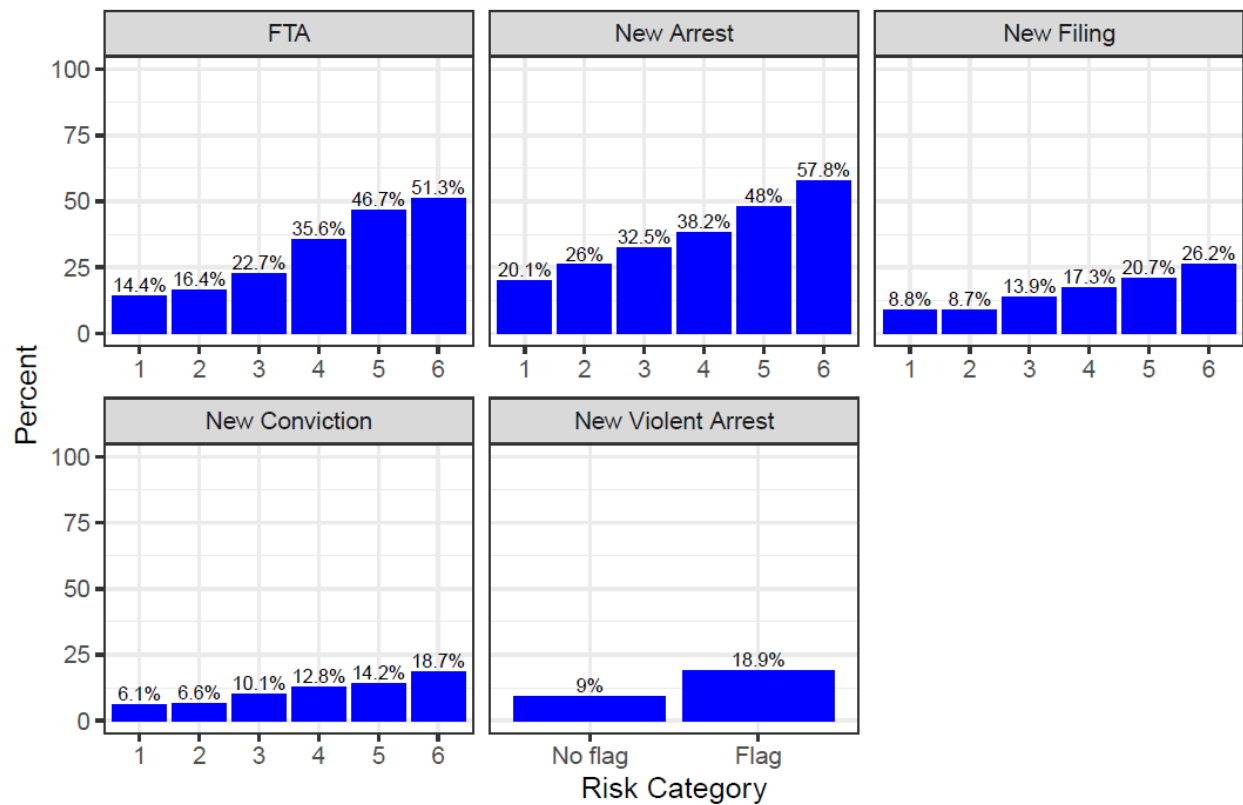


Table 7 shows the results from logistic regression models predicting each outcome of interest. The models control for the number of days the defendant spent released during the pretrial period. For each outcome of interest, the models show that the relevant PSA risk score is statistically significantly ( $p < .001$ ) associated with the likelihood of the outcome during the pretrial period, as is the number of days an individual is out on release.

**Table 7. Logistic Regression Models Predicting the Likelihood of Outcomes of Interest by Risk Scores Controlling for Days Released**

	<i>Dependent variable:</i>				
	FTA (1)	New Arrest (2)	New Filing (3)	New Conviction (4)	New Violent Arrest (5)
PSA FTA Risk Score	0.501*** (0.017)				
PSA NCA Risk Score		0.398*** (0.016)	0.301*** (0.020)	0.278*** (0.022)	
PSA NVCA Risk Score					0.909*** (0.067)
Days Released	0.003*** (0.0001)	0.003*** (0.0001)	0.002*** (0.0001)	0.002*** (0.0002)	0.003*** (0.0001)
Constant	-3.295*** (0.074)	-2.665*** (0.073)	-3.138*** (0.092)	-3.436*** (0.104)	-2.971*** (0.057)
Observations	10,476	10,476	10,476	10,476	10,476
Log Likelihood	-5,361.376	-6,268.777	-4,458.802	-3,648.852	-3,436.343
Akaike Inf. Crit.	10,728.750	12,543.550	8,923.605	7,303.704	6,878.685

*Note:*

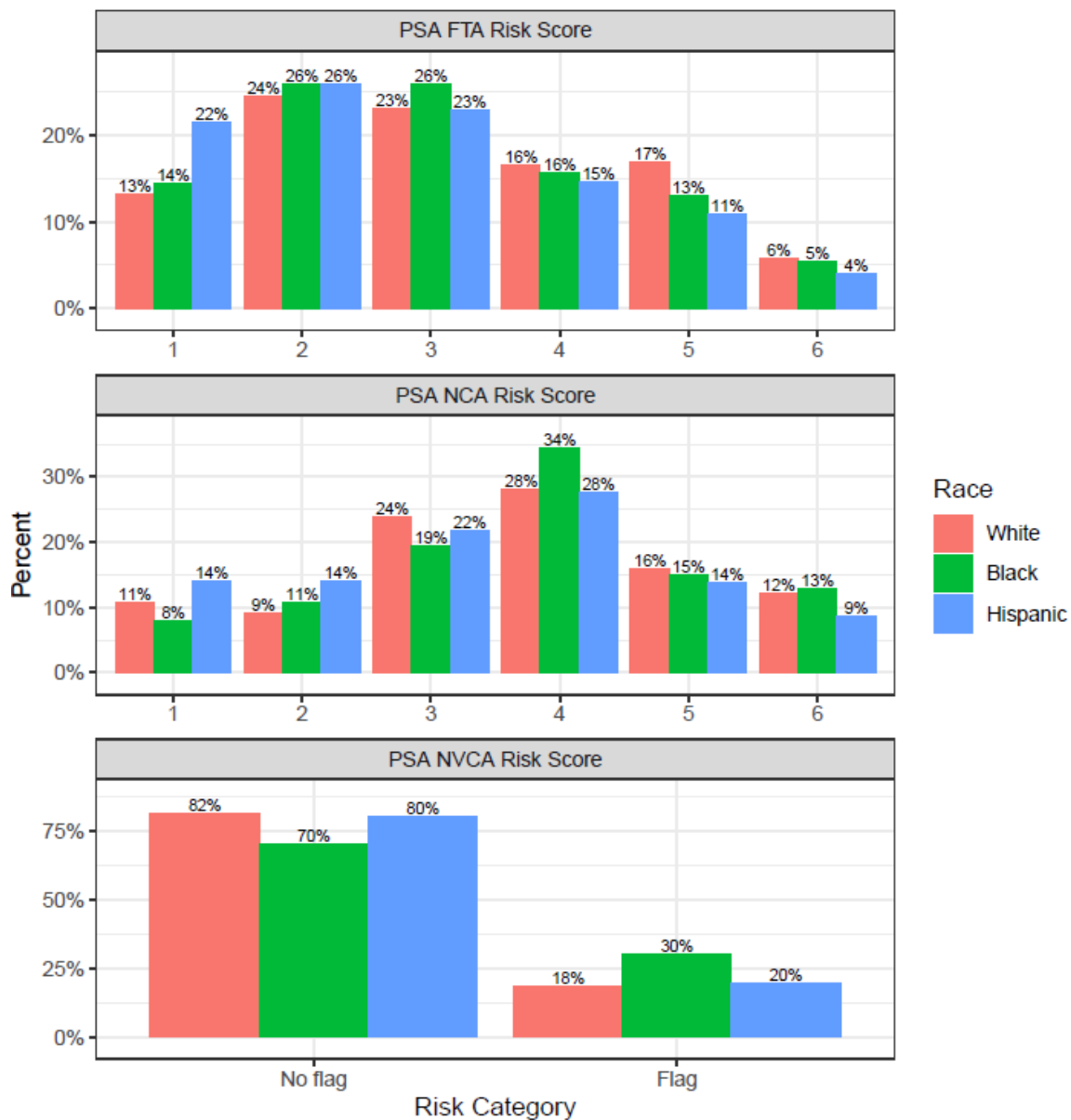
\*p<0.05; \*\*p<0.01; \*\*\*p<.001

## ANALYSIS OF BIAS

### RACE

Figure 3 shows the distribution of risk assessment scores by race/ethnicity. The distribution of scores varies by race/ethnicity most notably for NVCA score, with Black individuals receiving a new violent crime flag proportionately more frequently than White and Hispanic individuals. The number of individuals in each race/ethnicity group (Table 8) is sufficient to run statistical tests that look at how the PSA tool scales performed by race/ethnicity.

**Figure 3. Distribution of Risk Scores by Race/Ethnicity**



**Table 8. Count of Individuals by FTA, NCA and NVCA Risk Scores and Race/Ethnicity**

PSA FTA Risk Score	White	Black	Hispanic
1	476	530	438
2	872	954	521
3	824	965	489
4	608	577	304
5	612	481	225
6	213	209	82

PSA NCA Risk Score	White	Black	Hispanic
1	390	299	282
2	313	378	284
3	851	713	444
4	1,033	1,297	590
5	576	555	279
6	442	474	180

PSA NVCA Risk Score	White	Black	Hispanic
No flag	2,924	2,590	1,629
Flag	681	1,126	430

Table 9 shows the AUC values<sup>13</sup> and 95% confidence intervals for each outcome of interest and relevant PSA risk subscale separately for each race/ethnicity group. The AUC value for FTA in each race/ethnicity group fall in the good range, and all other outcomes have AUC values in the fair range. Statistical testing<sup>14</sup> indicates that there is no evidence of a true difference in the AUC values across race/ethnicity groups for any of the outcomes of interest.

<sup>13</sup> See page 9 for description of the meaning of AUC values.

<sup>14</sup> DeLong's test for two ROC curves. (See Appendix C).

**Table 9. AUC values for Outcomes of Interest by Race/Ethnicity**

Risk Score	Outcome	AUC			CI (95%)		
		White	Black	Hispanic	White	Black	Hispanic
PSA FTA	FTA	0.653	0.671	0.669	0.635-0.672	0.651-0.69	0.642-0.697
PSA NCA	New Arrest	0.628	0.613	0.632	0.611-0.646	0.595-0.631	0.608-0.656
PSA NCA	New Filing	0.602	0.599	0.620	0.579-0.624	0.575-0.623	0.589-0.651
PSA NCA	New Conviction	0.596	0.586	0.611	0.569-0.622	0.559-0.613	0.575-0.647
PSA NVCA	New Violent Arrest	0.572	0.579	0.606	0.547-0.596	0.557-0.601	0.571-0.641

*Note:*

N White = 3728 , N Black = 3839 , N Hispanic = 2131

Figure 4 shows the results of statistical models of the predictive power of the relevant PSA subscale for each outcome of interest for each race/ethnicity group. Each line represents the probability of each outcome of interest at each risk level separately for each race/ethnicity. The grey area around each line represents a 95% confidence interval. When the grey areas do not overlap, the evidence indicates there is likely a true difference between the groups. Conversely, when the grey areas overlap, the evidence may not be strong enough to conclude that there are differences between them.

For the FTA outcome, at the lower end of the range, the confidence interval for the White line does not overlap with that of the Black and Hispanic lines. Hence, there is evidence that White individuals have a higher probability of FTA as compared to Black and Hispanic individuals with the same lower range risk scores.

For new arrest, new conviction, and new filing outcomes, the confidence intervals of the lines for Black, Hispanic, and White groups overlap, indicating there may be insufficient evidence to conclude any true difference in the likelihood of those outcomes for individuals across these groups with the same score. However, for each of these outcomes the line for the Black group is consistently lower than the line for the white group across most of the risk scale.

For the new violent arrest outcome, the confidence intervals are notably wider. Due to the relative rarity of new violent arrests, the model is unable to make precise predictions. For individuals without a NVCA flag, there is some evidence that the probability of new violent criminal activity is higher for Black individuals than for White and Hispanic individuals.



**Figure 4. Comparison of Racial/Ethnic Differences in Logistic Regression Curves**

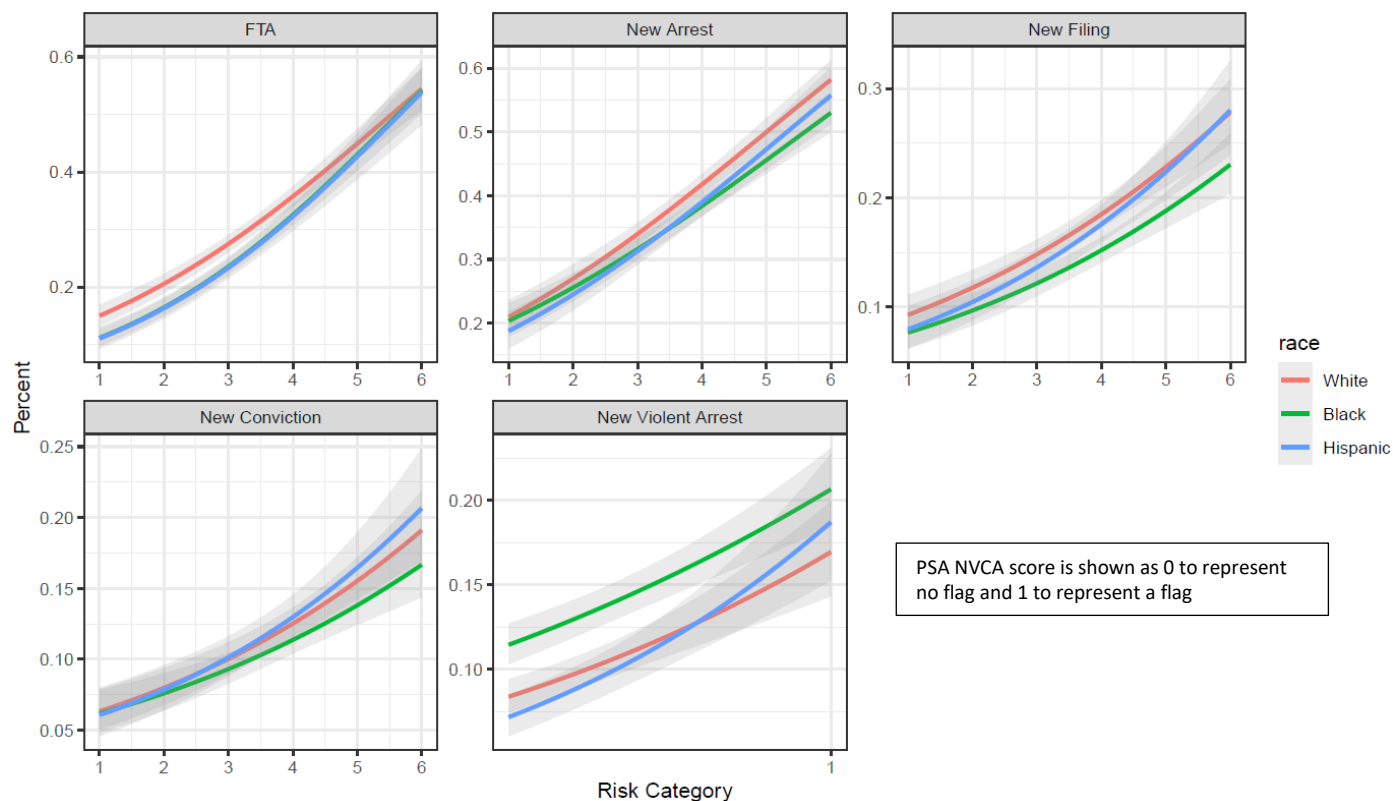


Table 10 shows the results of a logistic regression which predicts each outcome of interest by the relevant PSA subscale risk score, race, and number of days spent released. This statistical test compares Black and Hispanic individuals with White individuals. Risk level on the relevant PSA subscale is in each case a statistically significant ( $p < .001$ ) predictor of the outcome of interest. The number of days the individual was out on release also was a statistically significant predictor ( $p < .001$ ) of all outcomes of interest, indicating that the longer an individual spends on release the more likely the individual is to experience these outcomes.

Additionally, Black race is a statistically significant predictor of all outcomes of interest. The negative coefficient of FTA ( $p < .001$ ), new arrest ( $p < .001$ ), new filing ( $p < .001$ ), and new conviction ( $p < .05$ ) indicate that Black individuals had a lower probability of experiencing these outcomes as compared to White individuals with the same risk scores. The positive coefficient on the new violent arrest outcome indicates that Black individuals had a higher likelihood of a new violent arrest compared to White individuals with the same risk scores.

Hispanic ethnicity is a statistically significant predictor of FTA ( $p < .01$ ) and new arrest ( $p < .05$ ). The negative coefficient for Hispanic ethnicity indicates that Hispanic individuals had a lower probability of FTA and new arrest as compared to White individuals with the same risk scores.

This statistical test is limited, however, because it tests for an overall effect of race across the full risk scale, and it is possible that there may be different patterns across particular ranges of the tool subscales. Table 11 will use a more complex statistical model that allows for this possibility.

**Table 10. Logistic Regression Model Predicting the Likelihood of Outcomes of Interest by Risk Scores and Race/Ethnicity, Controlling for Days released**

	<i>Dependent variable:</i>				
	FTA (1)	New Arrest (2)	New Filing (3)	New Conviction (4)	New Violent Arrest (5)
PSA FTA Risk Score	0.488*** (0.018)				
PSA NCA Risk Score		0.389*** (0.017)	0.297*** (0.021)	0.272*** (0.023)	
PSA NVCA Risk Score					0.866*** (0.070)
Race:Black	-0.239*** (0.056)	-0.198*** (0.051)	-0.273*** (0.064)	-0.147* (0.073)	0.264*** (0.074)
Race:Hispanic	-0.207** (0.067)	-0.133* (0.060)	-0.070 (0.074)	0.034 (0.085)	-0.085 (0.094)
Days Released	0.003*** (0.0001)	0.003*** (0.0001)	0.002*** (0.0001)	0.002*** (0.0002)	0.003*** (0.0002)
Constant	-3.131*** (0.083)	-2.542*** (0.081)	-3.012*** (0.102)	-3.377*** (0.117)	-3.026*** (0.073)
Observations	9,698	9,698	9,698	9,698	9,698
Log Likelihood	-4,979.470	-5,815.857	-4,143.426	-3,385.790	-3,221.750
Akaike Inf. Crit.	9,968.939	11,641.710	8,296.852	6,781.580	6,453.500

*Note:*

\*p<0.05; \*\*p<0.01; \*\*\*p<.001

Table 11 shows the results of a logistic regression which predicts each outcome of interest by the relevant PSA subscale risk score, race, the interaction between race and the PSA risk score, and number of days spent released. The number of days released is a statistically significant (p<.001) predictor of each outcome of interest. This statistical test again compares Black and Hispanic individuals with White individuals.

The results do not show evidence of a statistically significant interaction between Black race and the relevant PSA subscale risk scores on any outcome of interest. Likewise, the results do not show evidence of a statistically significant interaction between Hispanic ethnicity and the relevant PSA subscale risk score on any outcome of interest. In the absence of a statistically significant interaction, the above model (Table 10) with no interaction is more appropriate to demonstrate the impact of race/ethnicity.

**Table 11. Logistic Regression Model Predicting the Likelihood of Outcomes of Interest by Risk Scores, Race/Ethnicity, and Interaction of Race/Ethnicity and Risk Scores, Controlling for Days released**

	<i>Dependent variable:</i>				
	FTA (1)	New Arrest (2)	New Filing (3)	New Conviction (4)	New Violent Arrest (5)
PSA FTA Risk Score	0.453*** (0.027)				
PSA NCA Risk Score		0.406*** (0.026)	0.294*** (0.031)	0.278*** (0.037)	
PSA NVCA Risk Score					0.856*** (0.124)
Race:Black	-0.368*** (0.110)	-0.050 (0.117)	-0.223 (0.156)	-0.039 (0.178)	0.305*** (0.091)
Race:Hispanic	-0.379** (0.126)	-0.158 (0.130)	-0.173 (0.170)	-0.048 (0.195)	-0.192 (0.116)
Days Released	0.003*** (0.0001)	0.003*** (0.0001)	0.002*** (0.0001)	0.002*** (0.0002)	0.003*** (0.0002)
FTA*Black	0.053 (0.039)				
FTA*Hispanic	0.074 (0.046)				
NCA*Black		-0.051 (0.037)	-0.016 (0.047)	-0.035 (0.053)	
NCA*Hispanic		0.011 (0.043)	0.037 (0.053)	0.030 (0.060)	
NVCA*Black					-0.097 (0.158)
NVCA*Hispanic					0.326 (0.202)
Constant	-2.558*** (0.085)	-2.201*** (0.088)	-2.706*** (0.111)	-3.121*** (0.130)	-3.023*** (0.078)
Observations	9,698	9,698	9,698	9,698	9,698
Log Likelihood	-4,977.895	-5,814.467	-4,142.956	-3,385.221	-3,219.218
Akaike Inf. Crit.	9,969.791	11,642.930	8,299.912	6,784.442	6,452.435

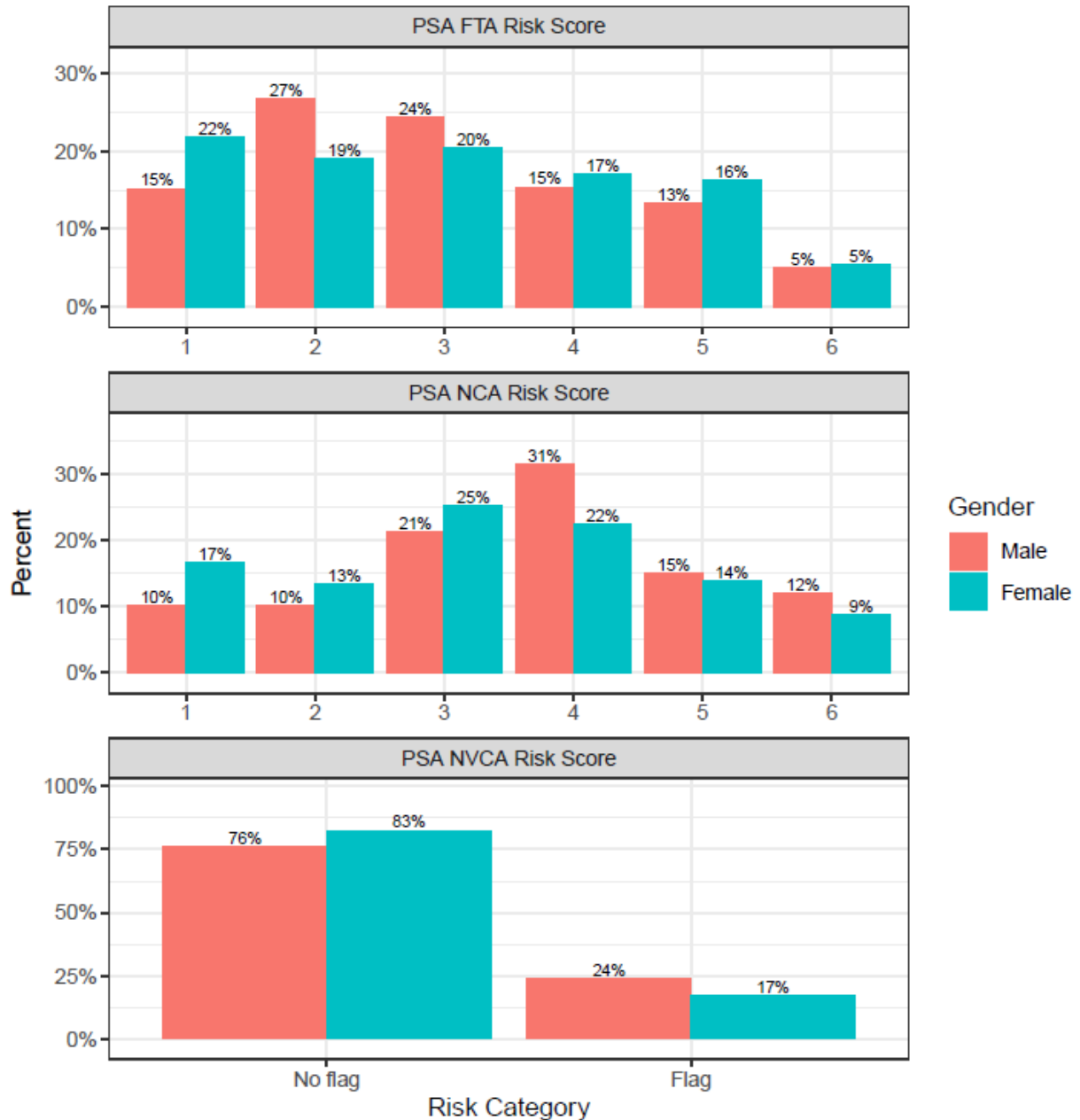
Note:

\*p<0.05; \*\*p<0.01; \*\*\*p<.001

## GENDER

Figure 5 shows the distribution of risk assessment scores by gender. Women are less likely to have a NVCA flag compared to men. The number of assessed individuals in each gender group (Table 12) is sufficient to run statistical tests that look at how the PSA tool scales performed by gender.

**Figure 5. Distribution of Risk Scores by Gender**



**Table 12. Count of Individuals by FTA, NCA and NVCA Risk Scores and Gender**

PSA FTA Risk Score	Male	Female
1	1,325	383
2	2,328	332
3	2,126	359
4	1,342	300
5	1,162	284
6	438	94

PSA NCA Risk Score	Male	Female
1	886	290
2	894	235
3	1,859	443
4	2,736	391
5	1,303	241
6	1,043	152

PSA NVCA Risk Score	Male	Female
No flag	6,665	1,447
Flag	2,056	305

Table 13 shows the AUC values<sup>15</sup> and 95% confidence intervals for each outcome of interest and relevant PSA risk subscale separately for women and men. Apart from the AUC values for FTA, which falls in the good range for both males and females, all other AUC values were in the fair range. Statistical testing<sup>16</sup> indicates that there were no statistically significant differences in AUC for men compared to women for any of the outcomes of interest.

<sup>15</sup> See page 9 for description of the meaning of AUC values.

<sup>16</sup> DeLong's test for two ROC curves

**Table 13. AUC values for Outcomes of Interest by Gender**

Risk Score	Outcome	AUC		CI (95%)	
		Female	Male	Female	Male
PSA FTA	FTA	0.670	0.671	0.642-0.697	0.658-0.683
PSA NCA	New Arrest	0.627	0.628	0.601-0.654	0.616-0.64
PSA NCA	New Filing	0.592	0.610	0.556-0.628	0.595-0.626
PSA NCA	New Conviction	0.590	0.600	0.55-0.631	0.583-0.618
PSA NVCA	New Violent Arrest	0.597	0.585	0.564-0.63	0.569-0.601

*Note:*

N Female = 1752 , N Male = 8721

Figure 6 shows the results of statistical models of the predictive power of the relevant PSA subscale for each outcome of interest for women as compared to men. Each line represents the probability of each outcome of interest at each risk level separately for each gender. The grey area around each line represents a 95% confidence interval – where the grey areas do not overlap the evidence indicates there is likely a true difference between the groups, where the grey areas overlap the evidence may not be strong enough to conclude that there are differences between them.

Because there are fewer women at the high end of the risk distributions, the 95% confidence intervals tend to be wider at the high end of the distributions for each outcome. Across most outcomes, the confidence intervals for the line for men and the line for women are largely overlapping, indicating there may not be sufficient evidence to conclude there is a true difference. However, for the FTA and new violent arrest outcomes, the confidence intervals for men and women have some non-overlapping points in the mid-range of the scale.

**Figure 6. Comparison of Gender Differences in Logistic Regression Curves**

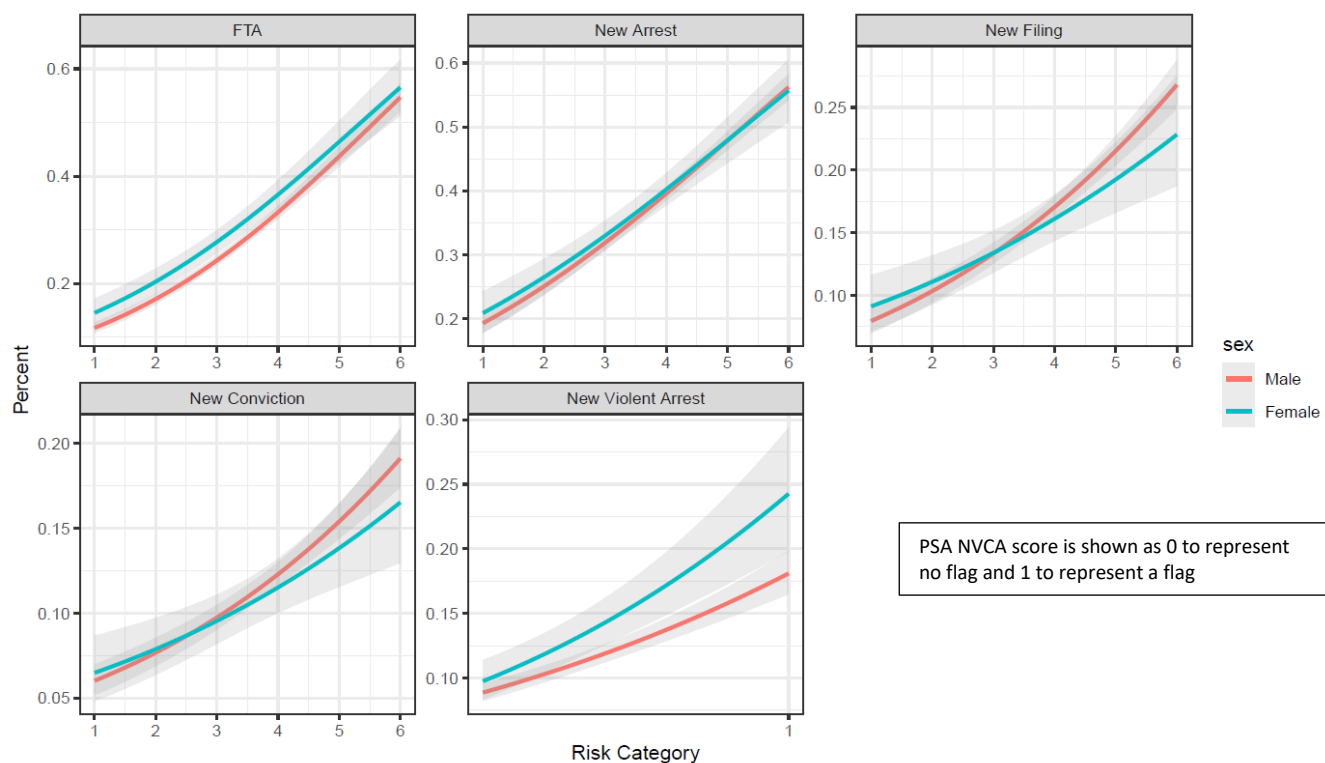


Table 14 shows the results of a logistic regression, which predicts each outcome of interest by the relevant PSA subscale risk score, gender, and number of days spent released. This statistical test compares women with men. Risk level on the relevant PSA subscale is, in each case, a statistically significant ( $p < .001$ ) predictor of all outcomes of interest. The number of days the individual was out on release was also a statistically significant predictor ( $p < .001$ ) of all outcomes, indicating that the longer an individual spends on release, the more likely the individual is to experience an FTA, new arrest, new filing, new conviction, or new violent arrest.

Female gender is a statistically significant ( $p < 0.05$ ) predictor of FTA and new violent arrest. The positive coefficient value for FTA and new violent arrest indicate that women are statistically significantly more likely to experience FTA and new violent arrest outcomes as compared to men with the same score. Female gender is not a statistically significant predictor of new arrest, new filing or new conviction.

This statistical test is limited, however, because it tests for an overall effect of gender across the full risk scale, and as can be seen from the above charts there may be different patterns for women as compared to men. Table 15 will use a more complex statistical model that allows for this possibility.

**Table 14. Logistic Regression Model Predicting the Likelihood of Outcomes of Interest by Risk Scores and Gender, Controlling for Days Released**

	<i>Dependent variable:</i>				
	FTA (1)	New Arrest (2)	New Filing (3)	New Conviction (4)	New Violent Arrest (5)
PSA FTA Risk Score	0.500*** (0.017)				
PSA NCA Risk Score		0.398*** (0.016)	0.300*** (0.020)	0.276*** (0.022)	
PSA NVCA Risk Score					0.920*** (0.067)
Female	0.148* (0.062)	0.019 (0.058)	−0.054 (0.075)	−0.065 (0.086)	0.181* (0.083)
Days Released	0.003*** (0.0001)	0.003*** (0.0001)	0.002*** (0.0001)	0.002*** (0.0002)	0.003*** (0.0001)
Constant	−3.317*** (0.075)	−2.669*** (0.075)	−3.124*** (0.093)	−3.420*** (0.106)	−3.006*** (0.060)
Observations	10,473	10,473	10,473	10,473	10,473
Log Likelihood	−5,357.677	−6,267.043	−4,458.026	−3,648.194	−3,433.615
Akaike Inf. Crit.	10,723.350	12,542.090	8,924.052	7,304.387	6,875.231

*Note:*

\*p<0.05; \*\*p<0.01; \*\*\*p<.001

Table 15 shows the results of a logistic regression which predicts each outcome of interest by the relevant PSA subscale risk score, gender, the interaction between gender and the PSA risk score, and number of days spent released. The number of days spent released is a statistically significant ( $p<.001$ ) predictor of each outcome of interest. This statistical test again compares women with men as the base group.

The results indicate that there is a statistically significant ( $p<0.05$ ) interaction between gender and risk score for the new violent arrest outcome. The positive coefficient value for new violent arrest indicate that women are statistically significantly more likely to be arrested for a new violent offense if they have do not have a NVCA flag than men without an NVCA flag. There are no other statistically significant interactions between gender and relevant PSA subscale risk scores.



**Table 15. Logistic Regression Model Predicting the Likelihood of Outcomes of Interest by Risk Scores, Gender, and Interaction of Gender and Risk Scores, Controlling for Days Released**

	<i>Dependent variable:</i>				
	FTA (1)	New Arrest (2)	New Filing (3)	New Conviction (4)	New Violent Arrest (5)
PSA FTA Risk Score	0.505*** (0.019)				
PSA NCA Risk Score		0.399*** (0.017)	0.311*** (0.022)	0.283*** (0.025)	
PSA NVCA Risk Score					0.858*** (0.074)
Female	0.206 (0.117)	0.029 (0.117)	0.119 (0.156)	0.051 (0.181)	0.067 (0.100)
Days Released	0.003*** (0.0001)	0.003*** (0.0001)	0.002*** (0.0001)	0.002*** (0.0002)	0.003*** (0.0001)
FTA*Female	-0.024 (0.042)				
NCA*Female		-0.004 (0.040)	-0.063 (0.051)	-0.042 (0.058)	
NVCA*Female					0.383* (0.180)
Constant	-2.828*** (0.064)	-2.273*** (0.064)	-2.858*** (0.081)	-3.166*** (0.093)	-2.987*** (0.060)
Observations	10,473	10,473	10,473	10,473	10,473
Log Likelihood	-5,357.513	-6,267.039	-4,457.255	-3,647.932	-3,431.385
Akaike Inf. Crit.	10,725.020	12,544.080	8,924.510	7,305.864	6,872.770

*Note:*

\*p<0.05; \*\*p<0.01; \*\*\*p<.001

## APPENDIX A

**Table A1. Public Safety Assessment (PSA): Factors and Weights**

Risk Factor	Response	Weight
<b>FAILURE TO APPEAR (0–7)</b>		
Pending Charge at the Time of the Offense	No	0
	Yes	1
Prior Conviction	No	0
	Yes	1
Prior Failures to Appear Pretrial in Past 2 Years	0	0
	1	2
	2 or More	4
Prior Failure to Appear Pretrial Older than 2 Years	No	0
	Yes	1
<b>NEW CRIMINAL ACTIVITY (0–13)</b>		
Age at Current Arrest	23 or Older	0
	22 or Younger	2
Pending Charge at the Time of the Offense	No	0
	Yes	3
Prior Misdemeanor Conviction	No	0
	Yes	1
Prior Felony Conviction	No	0
	Yes	1
Prior Violent Conviction	0	0
	1 or 2	1
	3 or more	2
Prior Failure to Appear Pretrial in Past 2 Years	0	0
	1	1
	2 or More	2
Prior Sentence to Incarceration	No	0
	Yes	2
<b>NEW VIOLENT CRIMINAL ACTIVITY (0–7)</b>		
Current Violent Offense	No	0
	Yes	2
Current Violent Offense & 20 Years Old or Younger	No	0
	Yes	1
Pending Charge at the Time of the Offense	No	0
	Yes	1
Prior Conviction	No	0
	Yes	1
Prior Violent Conviction	0	0
	1 or 2	1
	3 or More	2

Source: [Public Safety Assessment: Risk Factors and Formula](#), Laura and John Arnold Foundation (2013)

**Table A2. Public Safety Assessment (PSA): Factors and Weights**

Outcome Measure	Raw Score	Risk Scale
Failure to Appear (FTA)	0	1
	1	2
	2	3
	3	4
	4	4
	5	5
	6	5
	7	6
New Criminal Activity (NCA)	0	1
	1	2
	2	2
	3	3
	4	3
	5	4
	6	4
	7	5
	8	5
	9-13	6
Outcome Measure	Raw Score	NCVA Flag
New Violent Criminal Activity (NVCA)	0	No
	1	No
	2	No
	3	No
	4	Yes
	5	Yes
	6	Yes
	7	Yes

Source: [\*Public Safety Assessment: Risk Factors and Formula\*, Laura and John Arnold Foundation \(2013\)](#)

Table B1. PSA Violent Offense List

PC CODE	Description
69	Obstructing or resisting exec officer in performance of duty; threats, force, or violence
136.1(c)(1)	Intimidating/Threat Witness/Victim and Act is accompanied by force
140(a)	Threatening Witnesses, victims or informants.
148(b)	Removal or taking of weapon other than firearm from peace officer during commission of resisting offense
148(c)	Removal or taking of firearm from peace officer during commission of resisting offense
148(d)	Removal or taking of weapon firearm from peace officer engaged in performance of duty
148.10(a)	Resist Po: Cause death/SBI
149	Assault by a public officer
151	Advocacy to kill or injure peace officer
186.26(c)	Use of coercion or violence to solicit or recruit another to actively participate in criminal street gang
187(a)	Murder first or second degree
191.5(a)	Gross vehicular manslaughter while intoxicated
192(a)	Voluntary manslaughter
192(b)	Involuntary manslaughter
192(c)(1)	Vehicular manslaughter with gross negligence
192(c)(3)	Vehicular manslaughter
192.5(a)	Vehicular manslaughter in the operation of a vessel while intoxicated
192.5(b)	Vehicular manslaughter in the operation of a vessel while intoxicated
192.5(c)	Vehicular manslaughter in the operation of a vessel
203	Mayhem
205	Aggravated Mayhem
206	Torture
207(a)	Kidnapping
207(b)	Kidnap -14 to com I&I
207(c)	Kidnapping by false pretense
207(d)	Kidnapping from outside the state
208(b)	Kidnap child under 14 yrs
209(a)	Kidnapping for ransom
209(b)(1)	Kidnap: commit rob/rape/etc
209.5(a)	Kidnap during carjacking
210.5	False imprisonment of a hostage
667.85	Kidnap to deprive parent
211	Robbery: first or second degree
212	Fear defined for robbery
212.5	Robbery; degrees
214	Train robbery
215	Carjacking
217.1(a)	Assault on a public official

<b>217.1(b)</b>	Attempted murder of a public official
<b>218</b>	Train wrecking; attempt; punishment.
<b>218.1</b>	Obstructing railroad track; punishment.
<b>219</b>	Train derailling or wrecking; punishment.
<b>219.1</b>	Throwing missile at common carrier with bodily harm
<b>219.2</b>	Throwing hard substance or shooting missile at train or other conveyance
<b>220</b>	Assault with intent to commit mayhem, rape, sodomy, oral copulation, or any violation of Section 264.1, 288, or 289
<b>220(a)(1)</b>	Assault with intent to commit a felony
<b>220(a)(2)</b>	Assault with intent to commit a felony-victim under 18
<b>220(b)</b>	Assault to commit a felony during the commission of a first degree burglary
<b>222</b>	Administering to another any chloroform, ether, laudanum, or any controlled substance, anesthetic, or intoxicating agent
<b>236</b>	False imprisonment
<b>236.1</b>	Human trafficking; provisions regarding minors; consideration of total circumstances
<b>237(a)</b>	False imprisonment
<b>240</b>	Assault
<b>241</b>	Assault
<b>241.1</b>	Assault on custodial officer
<b>241.2</b>	Assault on school or park property
<b>241.3</b>	Assault against person on public transportation, both on property of and within motor vehicle of provider
<b>241.4</b>	Assault on peace officer of a school district
<b>241.5</b>	Assault on a highway worker
<b>241.6</b>	Battery on school employee
<b>241.7</b>	Assault against jurors
<b>241.8(a)</b>	Battery against member of us armed forces
<b>242</b>	Battery
<b>243</b>	Battery
<b>243.1</b>	Battery on custodial officer
<b>243.2(a)(1)</b>	Battery on pers on school/park/grnds
<b>243.25</b>	Battery on an elder or dependent adult
<b>243.3</b>	Battery on transportation personnel/passenger
<b>243.35</b>	Battery on public transportation provider
<b>243.4</b>	Sexual battery
<b>243.5(a)(1)</b>	Assault or battery on school prop
<b>243.6</b>	Battery on school employee
<b>243.65(a)</b>	Battery against a highway worker
<b>243.7</b>	Battery against jurors
<b>243.8(a)</b>	Battery against a sports official
<b>243.9(a)</b>	Aggravated battery by gassing on peace officer or local detention facility employee
<b>244</b>	Aslt w/caustic chem/etc
<b>244.5(b)</b>	Assault with stun gun/taser
<b>244.5(c)</b>	Assault with stun gun or taser on peace officer or firefighter

<b>245(a)(1)</b>	Force/adw-not firearm: gbi
<b>245(a)(2)</b>	Aslt w/ firearm on person
<b>245(a)(3)</b>	Aslt w/machinegun on person
<b>245(a)(4)</b>	Force/adw not firearm: gbi
<b>245(b)</b>	Assault w/semiauto rifle
<b>245(c)</b>	Adw not f/arm: po/fire: gbi
<b>245(d)(1)</b>	Assault with a firearm upon a peace officer or firefighter
<b>245(d)(2)</b>	Assault on peaceofficer/firefighter with semiautomatic firearm
<b>245(d)(3)</b>	Machine gun/assault weapon on a peace officer/firefighter
<b>245.2</b>	Assault (adw/gbi) upon transportation personnel, mass transit personnel
<b>245.3</b>	Assault (adw/gbi) upon a custodial officer
<b>245.5(a)</b>	Adw/gbi schl emp: no f/arm
<b>245.5(b)</b>	Assault with firearm on a school employee
<b>245.5(c)</b>	Adw/stun gun or taser: school employee
<b>245.6</b>	Hazing resulting in death/serious bodily injury
<b>246</b>	Shoot: inhab dwell/veh/etc
<b>246.3(a)</b>	Firearm disch w/neg
<b>246.3(b)</b>	BB device disch w/ neg
<b>261(a)</b>	Rape
<b>261.5(a)</b>	Sex intercourse w/mnr -18
<b>261.5(b)</b>	Sex w/minor: + or - 3 yrs
<b>261.5(c)</b>	Sex w/minor:3+ yrs younger
<b>261.5(d)</b>	Sex w/minor: perp 21+ vic-16
<b>262(a)(1)</b>	Rape spouse by force/etc
<b>262(a)(2)</b>	Rape spouse und c/sub/etc
<b>262(a)(3)</b>	Rape: spouse uncon of act
<b>262(a)(4)</b>	Rape: spouse - threat to kidnap, inflict extreme pain, serious bodily injury
<b>262(a)(5)</b>	Rape: spouse - threat to incarcerate, arrest, deport
<b>262(a)(6)</b>	Rape of spouse by threat to arrest or deport
<b>264.1</b>	Rape/etc: cnrt force/viol
<b>266a</b>	Taking a person for prostitution
<b>266b</b>	Abduction to live in illicit relation; using force
<b>266c</b>	Unlawful sexual intercourse, sexual penetration, oral copulation, or sodomy; consent procured by false or fraudulent representation with intent to create fear
<b>266h(b)</b>	Pimping a minor
<b>266i(b)</b>	Pandering a minor
<b>266j</b>	Procurement of child under age 16 for lewd and lascivious acts
<b>267</b>	Abduction; person under 18 for purpose of prostitution
<b>269(a)</b>	Agg sex aslt: mnrt: frce/etc
<b>273.4</b>	Female genital mutilation
<b>273.5(a)</b>	Injuring a spouse, cohabitant, fiancé, boyfriend, girlfriend or child's parent
<b>273.5(f)</b>	Inf crpl inj: sps/etc w/pr
<b>273.6(b)</b>	Viol crt ord to prev domes viol – results in physical injury
<b>273.6(d)</b>	Domestic violence w/prior – act of violence or a credible threat of violence
<b>273a(a)</b>	Willful cruel to child/poss inj/death

<b>273a(b)</b>	Willful cruelty to child
<b>273ab(a)</b>	Assault of child under 8 by force likely to produce GBI resulting in death
<b>273ab(b)</b>	Assault of child under 8 by force likely to produce GBI resulting in brain injury, paralysis
<b>273d(a)</b>	Inflict injury upon child
<b>278</b>	Child stealing
<b>285</b>	Incest
<b>286(b)</b>	Sodomy: person under 18
<b>286(c)</b>	Sodomy: person under 14
<b>286(d)</b>	Sodomy in concert w/force
<b>286(f)</b>	Sodomy: vict uncons of act
<b>286(g)</b>	Sodomy: vict incapbl:consent
<b>286(h)</b>	Sodomy: vic/def in mntl inst
<b>286(i)</b>	Sodomy: no ok: vict drugged
<b>286(j)</b>	Sodomy by impersonation
<b>286(k)</b>	Sodomy under color of authority
<b>288(a)</b>	Lewd or lasciv acts/w/child und 14yrs
<b>288(b)</b>	Lewd/lasc acts w/child under 14 or dependent person
<b>288(c)</b>	Lewd/lasc act w/chld 14/15: def 10yr+ or dependent person
<b>288.2(a)</b>	Harmful mtr sent w/int of seduc minor
<b>288.3</b>	Contact with intent to commit sex act
<b>288.4</b>	Arranging a meeting with minor for lewd purposes
<b>288.5(a)</b>	Continuous sexual abuse of child
<b>288.7(a)</b>	Sex/sodomy with a child under 10
<b>288.7(b)</b>	Oral copulation/sexual penetration with a child under 10
<b>287(b)</b>	Oral copulation w/pers und 18yrs
<b>287(c)</b>	Oral copul w/person und 14/by force
<b>287(d)</b>	Oral cop in concert: vic incap of con
<b>287(f)</b>	Oral cop: vic uncon/asleep
<b>287(g)</b>	Oral copulation of an incompetent person
<b>287(h)</b>	Oral cop: vic/def in mntl inst
<b>287(i)</b>	Oral copulation by anesthesia or controlled substance
<b>287(j)</b>	Oral copulation by impersonation
<b>287(k)</b>	Oral copulation under color of authority
<b>288a(b)</b>	Oral copulation w/pers und 18yrs
<b>288a(c)</b>	Oral copul w/person und 14/by force
<b>288a(d)</b>	Oral cop in concert: vic incap of con
<b>288a(f)</b>	Oral cop: vic uncon/asleep
<b>288a(g)</b>	Oral copulation of an incompetent person
<b>288a(h)</b>	Oral cop: vic/def in mntl inst
<b>288a(i)</b>	Oral copulation by anesthesia or controlled substance
<b>288a(j)</b>	Oral copulation by impersonation
<b>288a(k)</b>	Oral copulation under color of authority
<b>289</b>	Sexual pen with force/etc
<b>289.6(a)(3)</b>	Sex: emp/etc cnf/detention fac
<b>311.4(a)</b>	Using Minors for Sex Acts
<b>311.4(b)</b>	Using Minors for Commercial Sex Acts
<b>311.4(c)</b>	Using Minors for Sex Acts

<b>347(a)</b>	Poisoning, willful poison/etc food/etc
<b>368(b)</b>	Cause harm/death elder dep adult
<b>368(c)</b>	Elder/dependent adult cruelty
<b>368(f)</b>	False imprison: elder/dep adult violence
<b>404(a)</b>	Rioting
<b>417(a)</b>	Exhibit firearm or deadly weapon other than gun. Drawing, exhibiting, or using firearm or deadly weapon; self defense; peace officers.
<b>417(b)</b>	Exhibit firearm. Drawing, exhibiting, or using a firearm
<b>417(c)</b>	Exhibit firearm in presence of p.o. Drawing, exhibiting, or using firearm or deadly weapon; self defense; peace officers.
<b>417.3</b>	Exhibit firearm pres beh occup
<b>417.8</b>	Exhibit firearm/etc: resist arrest
<b>422.6(a)</b>	Violate civil rights by force or threat
<b>451(a)</b>	Arson causing great bodily injury
<b>451(b)</b>	Arson: inhabited structure/property
<b>451.1</b>	Arson with added circumstances
<b>451.5(a)</b>	Aggravated arson
<b>452(a)</b>	Causing fire that causes gbi
<b>452(b)</b>	Causing fire of inhabited struc/prop
<b>455</b>	Arson attempts and acts preliminary or in furtherance
<b>646.9(a)</b>	Stalking
<b>646.9(b)</b>	Stalking/temp restraining order
<b>647.6(a)(1)</b>	Annoy/molest child under 18yrs
<b>647.6(b)</b>	Annoy/molest child/ill entry of bldg
<b>647.6(c)</b>	Annoy/etc child -18 w/prior
<b>667.61(d)(2)</b>	Felony sex offenses; victim kidnapped increasing risk of harm
<b>667.61(d)(3)</b>	Felony sex offenses; victim tortured
<b>667.61(e)(1)</b>	Felony sex offense; victim kidnapped
<b>667.61(e)(2)</b>	Felony sex offenses during commission of burglary
<b>667.61(e)(4)</b>	Felony sex offenses against more than one victim
<b>667.61(e)(5)</b>	Felony sex offenses -tying or binding of victim or another person
<b>667.8</b>	Kidnap to commit sex offense
<b>667.85</b>	Kidnap child under 14 yrs
<b>674</b>	Sex offense by daycare provider
<b>836.6(c)</b>	Escape from custody by force or violence
<b>4500</b>	Assault by a life prisoner
<b>4501</b>	Assault by a state prisoner
<b>4501.1(a)</b>	Aggravated battery
<b>4501.5</b>	Battery on non-confined person by prisoner
<b>4503</b>	Holding of hostages; offense
<b>4530(a)</b>	Escape from custody by force and violence
<b>4532(a)(2)</b>	Escape from alternative custody by force or violence by person booked on misdemeanor
<b>4532(b)(2)</b>	Escape from alternative custody by force or violence by person booked on felony
<b>11413(a)</b>	terrorism by explosion
<b>11413(b)</b>	terrorism by explosion (specified places)
<b>11418(b)</b>	weapons of mass destruction: use and damage to life



<b>11418(c)</b>	weapons of mass destruction: use and damage to public natural resources
<b>11418(d)</b>	weapons of mass destruction: creation of new pathogens
<b>18740</b>	Use of destructive device and explosive to injure/destroy
<b>18745</b>	Explosion with intent to murder
<b>18750</b>	Explosion of destructive device causing bodily injury
<b>18755</b>	Explosion causing death, mayhem, GBI
<b>26100(c)</b>	Discharge of firearm at another person from motor vehicle
<b>18540(a)</b>	Use of firearm to intimidate a voter
<b>664/187(a)</b>	Attempted murder?
<b>664/211</b>	Attempted robbery
<b>Veh Code 2800.3(a)</b>	SBI caused by flight from peace officer
<b>Veh Code 2800.3(b)</b>	Death caused by flight from peace officer
<b><i>All attempts (PC 664), conspiracy (PC 182), solicitation (PC 653f), and accessory (PC 31) only if before the act of any of the offenses identified here also meet the definition of a violent offense for purposes of administering the PSA.</i></b>	

## SACRAMENTO PSA AUC Race/Ethnicity Comparisons

DeLong's test for two ROC curves

```
data: rocW_FTA and rocB_FTA
D = -1.2483, df = 7555.7, p-value = 0.212
alternative hypothesis: true difference in AUC is not equal to 0
sample estimates:
AUC of roc1 AUC of roc2
  0.653325   0.670639
```

DeLong's test for two ROC curves

```
data: rocW_FTA and rocH_FTA
D = -0.93336, df = 4032.1, p-value = 0.3507
alternative hypothesis: true difference in AUC is not equal to 0
sample estimates:
AUC of roc1 AUC of roc2
  0.6533250   0.6692835
```

DeLong's test for two ROC curves

```
data: rocB_FTA and rocH_FTA
D = 0.078014, df = 4217.6, p-value = 0.9378
alternative hypothesis: true difference in AUC is not equal to 0
sample estimates:
AUC of roc1 AUC of roc2
  0.6706390   0.6692835
```

DeLong's test for two ROC curves

```
data: rocW_newarrest and rocB_newarrest
D = 1.1764, df = 7564.9, p-value = 0.2395
alternative hypothesis: true difference in AUC is not equal to 0
sample estimates:
AUC of roc1 AUC of roc2
  0.6282445   0.6131330
```

DeLong's test for two ROC curves

```
data: rocW_newarrest and rocH_newarrest
D = -0.24401, df = 4333.6, p-value = 0.8072
alternative hypothesis: true difference in AUC is not equal to 0
sample estimates:
AUC of roc1 AUC of roc2
  0.6282445   0.6319652
```

DeLong's test for two ROC curves

```
data: rocB_newarrest and rocH_newarrest
D = -1.2304, df = 4390.7, p-value = 0.2186
alternative hypothesis: true difference in AUC is not equal to 0
sample estimates:
AUC of roc1 AUC of roc2
  0.6131330   0.6319652
```

DeLong's test for two ROC curves

```
data: rocW_newfiling and rocB_newfiling
D = 0.15779, df = 7550.6, p-value = 0.8746
alternative hypothesis: true difference in AUC is not equal to 0
sample estimates:
AUC of roc1 AUC of roc2
 0.6017352  0.5990681
```

DeLong's test for two ROC curves

```
data: rocW_newfiling and rocH_newfiling
D = -0.92579, df = 4297.7, p-value = 0.3546
alternative hypothesis: true difference in AUC is not equal to 0
sample estimates:
AUC of roc1 AUC of roc2
 0.6017352  0.6199749
```

DeLong's test for two ROC curves

```
data: rocB_newfiling and rocH_newfiling
D = -1.0391, df = 4532.5, p-value = 0.2988
alternative hypothesis: true difference in AUC is not equal to 0
sample estimates:
AUC of roc1 AUC of roc2
 0.5990681  0.6199749
```

DeLong's test for two ROC curves

```
data: rocW_newconviction and rocB_newconviction
D = 0.50221, df = 7563.8, p-value = 0.6155
alternative hypothesis: true difference in AUC is not equal to 0
sample estimates:
AUC of roc1 AUC of roc2
 0.5959151  0.5861505
```

DeLong's test for two ROC curves

```
data: rocW_newconviction and rocH_newconviction
D = -0.66527, df = 4384.7, p-value = 0.5059
alternative hypothesis: true difference in AUC is not equal to 0
sample estimates:
AUC of roc1 AUC of roc2
 0.5959151  0.6110013
```

DeLong's test for two ROC curves

```
data: rocB_newconviction and rocH_newconviction
D = -1.0851, df = 4505.7, p-value = 0.2779
alternative hypothesis: true difference in AUC is not equal to 0
sample estimates:
AUC of roc1 AUC of roc2
 0.5861505  0.6110013
```

DeLong's test for two ROC curves

```
data: rocW_newviolent and rocB_newviolent
D = -0.44895, df = 7471.6, p-value = 0.6535
alternative hypothesis: true difference in AUC is not equal to 0
sample estimates:
AUC of roc1 AUC of roc2
 0.5715859  0.5791495
```

DeLong's test for two ROC curves

```
data: rocW_newviolent and rocH_newviolent
D = -1.5947, df = 4169.9, p-value = 0.1109
alternative hypothesis: true difference in AUC is not equal to 0
sample estimates:
AUC of roc1 AUC of roc2
 0.5715859  0.6062060
```

DeLong's test for two ROC curves

```
data: rocB_newviolent and rocH_newviolent
D = -1.2844, df = 3857.7, p-value = 0.1991
alternative hypothesis: true difference in AUC is not equal to 0
sample estimates:
AUC of roc1 AUC of roc2
 0.5791495  0.6062060
```

---

## SACRAMENTO PSA AUC Gender Comparisons

DeLong's test for two ROC curves

```
data: rocW_FTA and rocM_FTA
D = -0.069678, df = 2584, p-value = 0.9445
alternative hypothesis: true difference in AUC is not equal to 0
sample estimates:
AUC of roc1 AUC of roc2
  0.6695276  0.6706050
```

DeLong's test for two ROC curves

```
data: rocW_newarrest and rocM_newarrest
D = -0.069704, df = 2476.5, p-value = 0.9444
alternative hypothesis: true difference in AUC is not equal to 0
sample estimates:
AUC of roc1 AUC of roc2
  0.6270855  0.6281169
```

DeLong's test for two ROC curves

```
data: rocW_newfiling and rocM_newfiling
D = -0.91451, df = 2423.6, p-value = 0.3605
alternative hypothesis: true difference in AUC is not equal to 0
sample estimates:
AUC of roc1 AUC of roc2
  0.5922669  0.6104602
```

DeLong's test for two ROC curves

```
data: rocW_newconviction and rocM_newconviction
D = -0.44641, df = 2441.5, p-value = 0.6553
alternative hypothesis: true difference in AUC is not equal to 0
sample estimates:
AUC of roc1 AUC of roc2
  0.5901639  0.6002362
```

DeLong's test for two ROC curves

```
data: rocW_newviolent and rocM_newviolent
D = 0.65778, df = 2644.7, p-value = 0.5107
alternative hypothesis: true difference in AUC is not equal to 0
sample estimates:
AUC of roc1 AUC of roc2
  0.5969466  0.5846133
```