

27th Annual

Recidivism Evaluation of the Colorado Division of Youth Services

Regarding Committed Youth

Discharged in Fiscal Years

2014-15,

2015-16,

&

2016-17

July 1, 2019



COLORADO

Division of Youth Services

Office of Children, Youth & Families

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EXECUTIVE SUMMARY

Annually, on July 1st, the Colorado Department of Human Services (CDHS or Department) publishes the results of a comprehensive analysis and review of juvenile recidivism for youth discharged from the Division of Youth Services (DYS or Division) in the preceding fiscal years.

YOUTH STUDIED

Recidivism rates were determined for three unique cohorts of discharged youth followed for one, two, and three years post-discharge from DHS. The Division defines recidivism as the adjudication or conviction of a new misdemeanor or felony offense within a specified time period.

- Fiscal Year 2016-17: Four hundred forty-two (442) youth discharged from DHS. Among these discharged youth, 86% were male, and 14% were female. This cohort was used to determine a one-year recidivism rate.
- Fiscal Year 2015-16: Four hundred forty-five (445) youth discharged from DHS. Among these discharged youth, 86% were male, and 14% were female. This cohort was used to determine a two-year recidivism rate.
- Fiscal Year 2014-15: Four hundred seventy-six (476) youth discharged from DHS. Among these discharged youth, 86% were male, and 14% were female. This cohort was used to determine a three-year recidivism rate.

ANALYSIS COHORT

As a means of combating the challenges associated with a shrinking population of youth who discharge from DHS annually, three years of data were combined to create a single, larger one-year post-discharge cohort. Specifically, each of the youth in the one-year post-discharge cohort for Fiscal Years (FY) 2014-15, 2015-16, and 2016-17 were combined to form a single Analysis Cohort of 1,363 youth. By combining these three cohorts into a single, larger cohort, some of the challenges presented by a shrinking population size were ameliorated and sufficient statistical power was generated in the analyses to detect significant between-groups differences. A total of nine youth in the created Analysis Cohort discharged in more than one Fiscal Year due to consecutive sentences, new commitments, or other legitimate reasons, bringing the total of unique youth present in the Analysis Cohort to 1,354. Of these nine youth with multiple commitments and discharges from DHS, four were excluded from the Analysis Cohort due to their dual recidivist and non-recidivist status. Specifically, these four youth committed a recidivist act within the one-year follow-up period of their first discharge, received a new commitment to DHS, and did not commit a recidivist act within the one-year post-discharge follow-up for their second discharge from DHS. As these four youth can be simultaneously categorized as both recidivists and non-recidivists, their presence in the statistical analyses that follow would violate the assumptions of the tests performed to identify significant relationships. For the purposes of the demographic analyses,

the remaining five youth who discharged in more than one fiscal year but were exclusively either recidivists or non-recidivists in both discharge cohorts were retained in the Analysis Cohort, and were only counted once to avoid "double-counting" individual static characteristics of recidivists and non-recidivists. Thus, the final total of unique youth included in the Analysis Cohort was 1,350. For a more detailed description of the demographic characteristics of the Analysis Cohort examined in the body of this report, please see Table 2 on pages 19-20 and Appendix B on page 65.

- Analysis Cohort: One thousand three hundred and fifty (1,350) unique youth discharged from DYS. Among unique discharged youth, 86% were male and 14% were female, a ratio that has remained stable over several years. This cohort was used for the majority of the analyses discussed throughout the report.

RECIDIVISM RATES

One-year recidivism rate

For youth who discharged in FY 2016-17, **34.4%** (152 out of 442 youth) were guilty of one or more recidivist acts within one year of discharge from DYS.

Two-year recidivism rate

For youth who discharged in FY 2015-16, **52.1%** (232 out of 445 youth) were guilty of one or more recidivist acts within two years of discharge from DYS.

Three-year recidivism rate

For youth who discharged in FY 2014-15, **61.1%** (291 out of 476 youth) were guilty of one or more recidivist acts within three years of discharge from DYS.

Analysis Cohort recidivism rate

For youth in the combined one-year post-discharge Analysis Cohort, **37.6%** (508 out of 1,350 total youth) were guilty of one or more recidivist acts within one year of discharge from DYS.

CHANGES TO THE RESEARCH METHODS IN THE CURRENT REPORT

Colorado has experienced a decade of decline in the number of youth discharged from DYS. The decline in the number of youth discharged from the Division ($n = 442$ in FY 2017) places limitations on the type and quality of analyses that can be performed with confidence and accuracy. Specifically, the sample sizes within the one-, two-, and three-year cohorts examined annually have become so small that they call into question whether or not sufficient statistical power can be generated to detect significant

differences between groups. Given the challenges presented by the Division's shrinking population, significant changes were made to the research methods employed in the current analysis with the goal of providing a scientifically rigorous means of addressing and ameliorating these challenges. The most significant change to the methodology was first implemented in the report produced on July 1, 2018, and involved creating a larger census for analysis. In order to obtain a larger census, the one-year post-discharge cohorts from the prior three fiscal years (FY 2014-15, FY 2015-16, and FY 2016-17) were combined into one, larger cohort of youth who were followed *for one year* for the analyses that follow. Increasing the sample size using this approach preserved the integrity of each cohort, while allowing for more meaningful comparisons both between and within groups. This larger cohort is referred to as the "Analysis Cohort" throughout the report.

In addition to the creation of the Analysis Cohort, the Division has pivoted the focus of the analysis of offense severity away from identifying a single, most serious recidivist act among discharged youth (who were followed for one year). Instead, the analyses regarding offenses currently includes a more comprehensive measure that examines the *chronicity* of *all* recidivist acts across the one-, two-, and three-year post-discharge cohorts (followed out to three years post-discharge). The chronicity of recidivist acts refers to the number and frequency of all recidivist acts that occur over the time period of interest (one, two, and three years post-discharge). Expanding this portion of the analysis to include all recidivist acts committed out to three years post-discharge rather than limiting the analyses to a single, most serious recidivist act allows for a more rigorous and nuanced examination of trends in recidivism, and brings the report in-line with more current criminological research [1].

As the new chronicity analysis examines all recidivist acts rather than a single, most serious act, all discharged youth in the one-, two-, and three-year post-discharge cohorts were re-matched to the filings data provided by the Judicial Department in July of 2018 to ensure that every filing with a finding of guilt was captured for the current report. One limitation of this approach is that it is no longer possible to re-create the recidivism rates from prior years using the current data, as the filings data provided in July of 2018 are more current and thus contain information that was not yet available in prior years. In addition, recidivism rates will necessarily be higher than those reported in prior years as more recidivist acts are detected using these new methods. For example, many filings that were "open" (an arrest was made, charges were filed, but no formal finding of guilt was made) at the time the discharge cohorts were originally matched to the filings data in prior years will now have a finding of guilt, and are considered recidivist acts. In this way, youth who were correctly identified as non-recidivists in the one-, two-, and three-year cohorts using the most current data available in prior years will now be correctly identified as recidivists within these same cohorts as a result of re-matching with more recent data. In contrast, the benefits of examining the chronicity of recidivist acts for trends and patterns of behavior outweigh the known limitations of re-matching youth to include all filings over the three cohorts of interest.

TYPES OF RECIDIVIST ACTS COMMITTED

Colorado Statute C.R.S., 19-2-203(6) was signed into law on March 7, 2018, and states that the annually mandated recidivism report "...must denote the types of criminal offenses committed, delineating between felonies and misdemeanors and between crimes that are included as a 'crime' pursuant to Section 24-4.1-302(1) and other crimes." In addition to the analysis of the types of recidivist acts (felony or misdemeanor) that has long been included in the recidivism report, 2019 was the inaugural year for examining crimes pursuant to Section 24-4.1-302(1), which are recidivist acts that fall under the Victim Rights Act (VRA). Of the recidivists in the three discharge cohorts followed for one, two, and three years post-discharge, the majority were originally sentenced to DYS on felony adjudications (57.7% felony vs. 42.3% misdemeanor). Of these original commitment offenses, 37.1% were crimes that fell under the VRA. This finding is consistent with the findings described in previous reports, where property crimes (which do not fall under the VRA) were consistently found to be the most common commitment offense. The majority of recidivist acts committed over each of the follow-up time periods were misdemeanors (55.9%) compared to felonies (44.1%). Relatively few recidivist acts were crimes that fell under the VRA (24.0%).

CHRONICITY OF RECIDIVIST ACTS

When all recidivist acts captured between FY 2014-15 and FY 2016-17 were examined as a whole, a pattern emerged in which most youth who recidivate do so fairly quickly after discharge, and most of these youth only commit one or two recidivist acts over the three year follow-up period ($n = 364$; 54%). Specifically, among the 364 youth who committed two or fewer recidivist acts, the first recidivist act occurred, on average, at 7.94 months post-discharge, with the second recidivist act occurring roughly 2.47 months after the first (see Figure 26 on page 53 and Table 76 on page 54). This finding indicates that most recidivists cease from committing new recidivist acts within the first year after discharge. In other words, while some discharged youth do commit a new offense after leaving DYS, the vast majority of recidivists do not continue to commit new crimes over time, and do not have persistent future criminal involvement. Those youth with a larger number of recidivist acts, on average, tended to commit the bulk of their recidivist acts within 24 months of discharge. In addition, those youth who committed more recidivist acts, on average, tended to demonstrate a consistent pattern of re-offending over time. Caution should be used, however, when interpreting data collected on a small sub-group within a population. The recidivists in this analysis tended to fall into three sub-categories with very disparate sample sizes: there were 364 youth who committed two or fewer recidivist acts, 291 youth who committed between 3 and 9 recidivist acts, and only 16 youth who committed between 10 and 44 recidivist acts.

NATIONAL COMPARISON

Currently, five states and the District of Columbia define, measure, and report juvenile recidivism utilizing a research methodology similar to Colorado, thus providing six data points for a between-states

comparison of recidivism rates. When comparing the one-year post-discharge recidivism rates between comparable states, Colorado's rate (34.4%) is the median of the performance range (20% - 46.7%). Maryland, (20%), Idaho (29%) and the District of Columbia (32.2%) had rates that were lower than Colorado.

C.R.S., 19-2-203(6) Details

The Colorado Department of Human Services (CDHS or Department), Office of Children, Youth and Families (OCYF or Office), Division of Youth Services (DYS or Division) prepares an annual recidivism report on committed youth. The current report is submitted in response to C.R.S., 19-2-203(6) (formerly House Bill 18-1010). The educational outcomes requirement is submitted in a separate report.

On or before July 1, 2018, and on or before each July 1 thereafter, the Department of Human Services shall collect recidivism data and calculate the recidivism rates and the educational outcomes for juveniles committed to the custody of the Department who complete their parole sentences and discharge from Department supervision. In collecting the recidivism data, the Department shall include any juvenile adjudication or adult conviction of a criminal offense within three years after parole discharge.

Statute C.R.S., 19-2-203(6) specifies that:

The report must denote the demographic characteristics of the population considered in the report. In reporting on recidivism rates, the report must denote the types of criminal offenses committed, delineating between felonies and misdemeanors and between crimes that are included as a “crime” pursuant to Section 24-4.1-302(1) and other crimes.

Specific elements can be found on the following pages:

- Demographic characteristics of the population considered in the report: Table 2, pages 19-20
- Criminal offenses committed (felonies, misdemeanors, and crimes pursuant to Section 24-4.1-302(1), C.R.S): pages 41-45

DEFINITION OF RECIDIVISM

The Division defines recidivism as a new adjudication or conviction resulting from a misdemeanor or felony offense at any point within the prescribed follow-up time period(s). In FY 2012-13 this definition was changed from measuring recidivism as a new filing (irrespective of a guilty finding) within the same time parameter(s) in order to more closely conform to the research methodologies utilized by other states who track juvenile recidivism. This allows for a between-states comparison of recidivism data, and conforms to the definition endorsed and recommended by the Council of Juvenile Correctional Administrators (CJCA) [2].

POST-DISCHARGE RECIDIVISM

Post-discharge recidivism refers to new adjudications and convictions that occur within the prescribed follow-up time period(s) *after* a youth has completed all treatment and services and is fully discharged from DYS supervision. Post-discharge recidivism is the primary outcome measure utilized by juvenile justice agencies across the nation. It serves as a proxy measure for how well youth are able to re-integrate back into the community and remain crime-free upon discharge. Nationally, juvenile justice agencies are using recidivism rates to objectively determine whether treatment and services provided to youth were not only appropriate and effective, but also as a tool to inform policy and practice.

MULTI-YEAR RECIDIVISM RATES

The majority of states currently engaged in measuring and reporting juvenile recidivism typically only report a one-year post-discharge recidivism rate. In contrast, DYS tracks youth for three years post-discharge in order to determine whether they have remained crime-free. Tracking youth for three years post-discharge provides a more rigorous and comprehensive longitudinal analysis of the overall paradigm of recidivism in Colorado, as well as the trajectory of outcomes over time.

RECIDIVIST ACT DEFINED

A recidivist act is defined as a new adjudication or conviction that occurs after a youth has discharged from the supervision of the Division. Within the Criminal Justice System, an *adjudication* refers to a finding of guilt for a delinquent offense involving a defendant under the age of 18, and is analogous to a *conviction* of an adult defendant found guilty of a criminal offense. A youth is deemed to be a recidivist if he or she commits a new offense that results in a guilty finding for a misdemeanor or felony class charge (adjudication/conviction). Petty offenses are not counted as recidivist acts, and traffic violations (not to be confused with traffic infractions), are only included if they result in a misdemeanor or felony adjudication or conviction. The unit of analysis for this study is youth discharged from the Division (rather than the number of recidivist acts), and all information is reported in the aggregate.

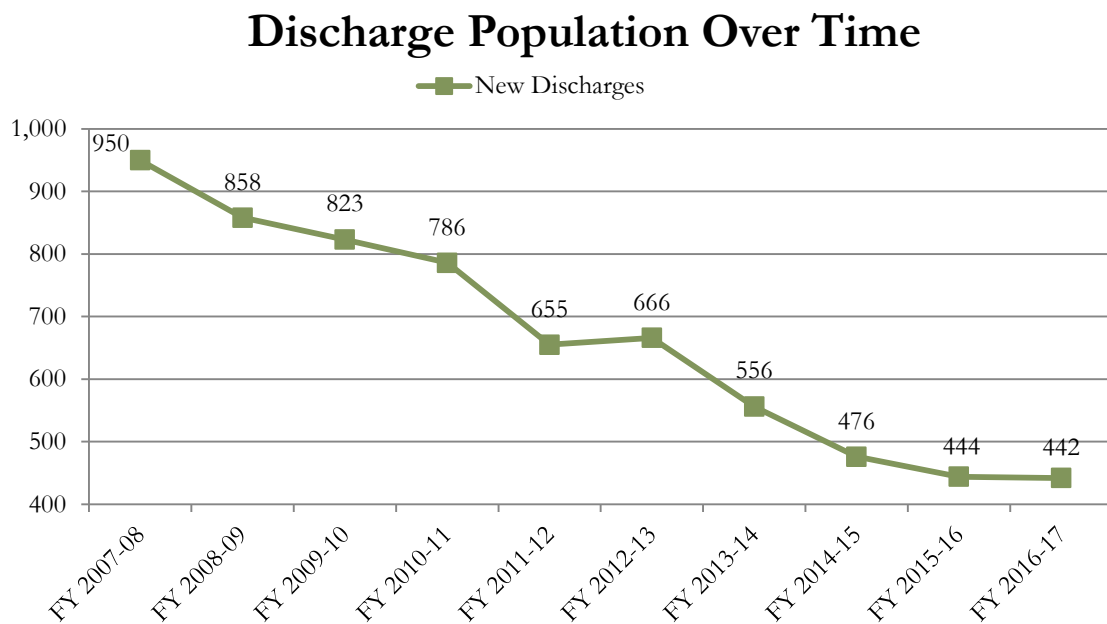
STUDY POPULATION

In FY 2016-17, four hundred forty-two (442) youth discharged from DYS. These youth were observed for one year after discharge, and a one-year post-discharge recidivism rate was calculated. In FY 2015-16, four hundred forty-five (445) youth discharged from DYS. These youth were observed for two years after their discharge, and a two-year post-discharge recidivism rate was calculated. In FY 2014-15, four hundred seventy-six (476) youth discharged from DYS. These youth were observed for three years following their discharge, and a three-year post-discharge recidivism rate was calculated. Official court records obtained from the Judicial Department were used to identify all criminal filings with a finding of guilt for all three discharge cohorts.

An Analysis Cohort of 1,350 unique youth was created by combining each of the one-year post-discharge cohorts from three Fiscal Years (FYs 2014-15, 2015-16, and 2016-17) into a single, larger cohort. A total of nine youth discharged in more than one FY contained within the Analysis Cohort due to consecutive sentences, new commitments, or other reasons common to system involved youth. Of these nine youth with multiple commitments and discharges from DYS, four were excluded from the Analysis Cohort due to their dual recidivist and non-recidivist status. Specifically, these four youth committed a recidivist act within the one year follow-up period of their first discharge, received a new commitment to DYS, and did not commit a recidivist act within the one year post-discharge follow-up for their second discharge from DYS. As these four youth can be simultaneously categorized as both recidivists and non-recidivists, their presence in statistical analyses would violate the assumptions of the tests performed to identify significant relationships. For the purposes of the demographic analyses, the remaining five youth who discharged in more than one fiscal year but were exclusively either recidivists or non-recidivists in both one year post-discharge follow-up periods were retained in the Analysis Cohort, and were only counted once to avoid "double-counting" individual static characteristics (e.g.: sex, race/ethnicity, and age at first adjudication). Thus, the final total of unique youth included in the Analysis Cohort was 1,350. All of the analyses that follow (excluding the analysis of chronicity) were

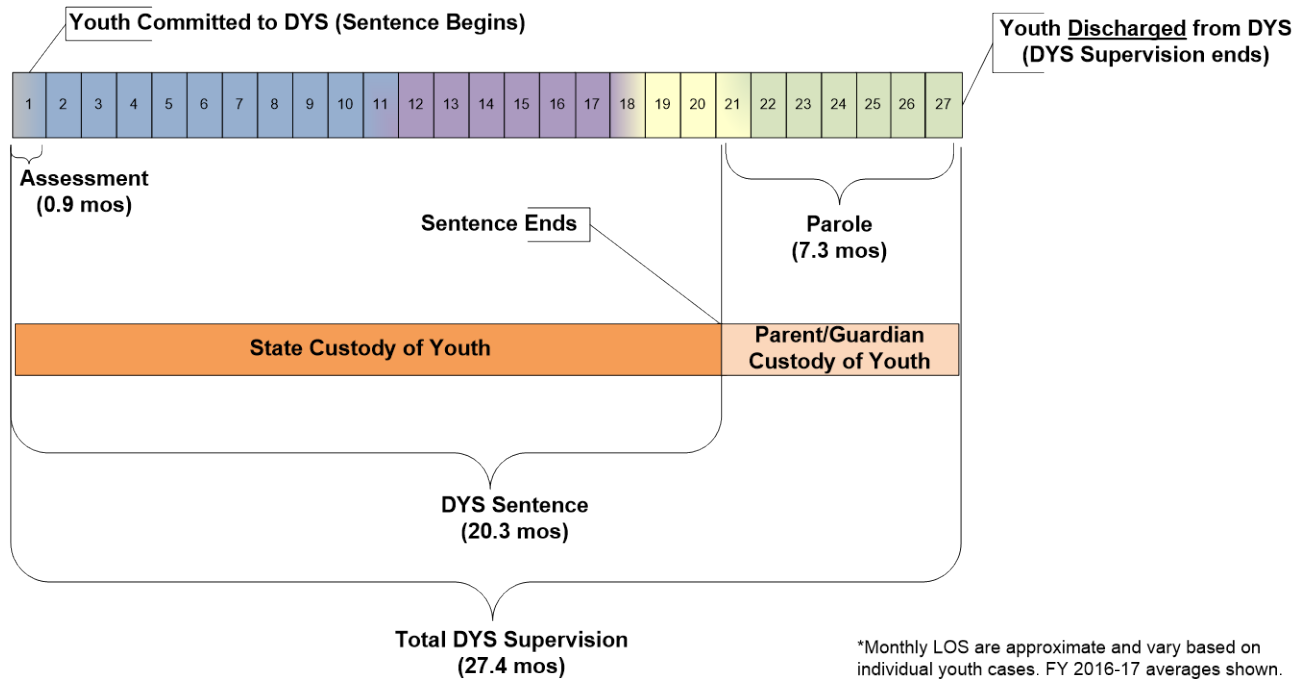
conducted on this Analysis Cohort as a means of minimizing the trend of a substantially shrinking population size. Over the past ten years, the population of youth discharged annually from DYS has declined from a high of 950 in FY 2007-08 to a low of 442 in FY 2016-17, a 53.5% reduction (see Figure 1). This decrease in population size directly impacts the Division’s ability to detect significant differences between groups, particularly when examined in smaller sub-populations (e.g.: males vs. females, by ethnicity, or among our special populations). Increasing the sample size is one accepted means of minimizing these challenges.

Figure 1: Ten-Year Discharge Population Trends



As Figure 2 illustrates, the average total length of DYS supervision for committed youth was 27.4 months in FY 2016-17. This total commitment Length of Service (LOS) begins at the time of commitment to DYS and continues through the parole period until a youth is officially discharged and DYS supervision ends.

Figure 2: DYS Timeline of Care



STUDY DESIGN

A prospective quasi-experimental observational cohort study design with a longitudinal follow-up period measured at three distinct intervals was used in the current analysis. This approach allowed for non-intrusive observation of the natural progression of three cohorts of previously delinquent youth in the community after they were discharged from DYS. The Division utilized Judicial court data from the Colorado State Judicial Department (Judicial) to determine whether or not a youth had committed a recidivist act during the follow-up period(s) for each cohort.

Due to several safeguards related to confidentiality and data-sharing, the Division and the Office of the State Court Administrator developed a Memorandum of Understanding (MOU) specifically related to this annual study. This MOU serves as a data-sharing agreement that grants DYS permission to utilize the adjudication/conviction information for purposes of identifying youth who recidivate.

RECORD MATCHING BETWEEN DYS AND JUDICIAL

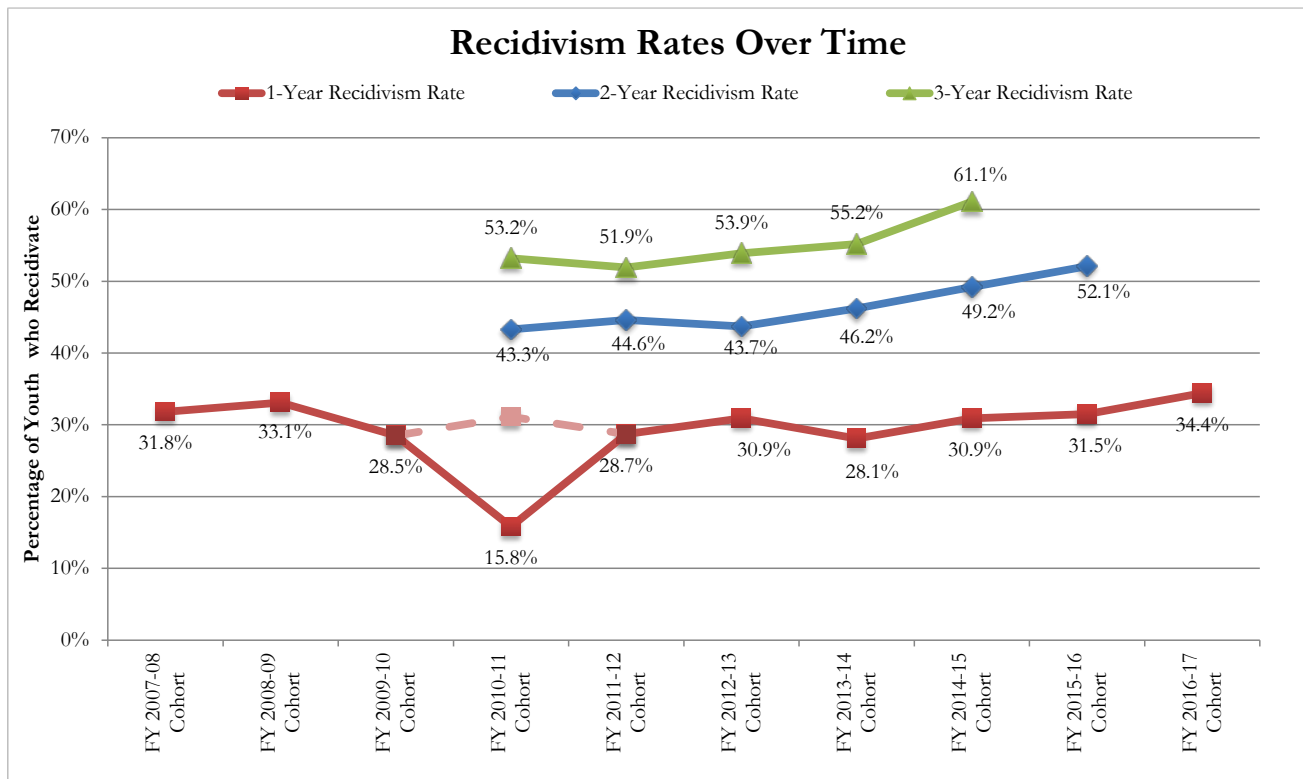
Matching records from Judicial to youth discharged from DYS is a difficult and labor-intensive process that is challenged by an inability of data systems across State agencies to “talk” to one another. In addition, typical matching techniques used in identifying adult offenders are simply not applicable to a juvenile population. Specifically, the typical forms of identification commonly present in the adult population (e.g.: driver’s license, social security number, etc.), are often rare or nonexistent for system-involved juveniles. Thus, youth discharged from DYS must be matched to a multitude of Judicial filings using less straightforward means. For this study, youth were matched between the two data systems through a two-step process. This process is both automated and manual, utilizing DYS data for discharged youth during the time period of interest, and seven FYs of filings data provided to DYS by Judicial Department staff. Initially, youth are matched by DYS staff through an algorithm that compares elements of a youth’s name and date of birth. Next, the remaining youth who do not match are identified by hand until all discharged DYS youth are accounted for in the Judicial system database. This hand-matching process is hindered by the vast number of aliases, misspellings, hyphenated names, attempts at intentional misrepresentation of identity, and data entry errors for dates of birth, social security numbers, etc. present in both data sets. Finally, all cases in the analysis data are reviewed to ensure the automated portion of the match did not result in any “false matches” in which two separate youth with similar names and identical dates of birth are incorrectly matched together. As a fidelity measure, each youth’s commitment case is found in Judicial’s data, thus providing great confidence that all youth are being appropriately matched across systems.

RECIDIVISM RATES

A decade (10 years) of DYS recidivism rates are displayed in Figure 3. The one-year post-discharge recidivism rate has consistently averaged around 31%, with the exception of the data initially reported in FY 2010-11. The recidivism rate of 15.8% originally reported in FY 2010-11 was investigated and found to be a result of a data coding error that failed to identify certain filings. The data were subsequently re-pulled from the Judicial system, and the actual one-year post-discharge recidivism rate of 31.1% was revealed. In the spirit of transparency, the rate originally published is preserved in Figure 3. Given this generally consistent historical trend, it is anticipated that recidivism rates will continue to hover around one-third of the total discharge population, barring significant systemic changes (e.g.: the use of front-end discretion in sentencing among adjudicated youth, the increased use of alternatives to incarceration, the quality and efficacy of treatment services delivered, resources available to both clinicians and youth, etc.).

Two- and three-year post-discharge recidivism rates are a relatively new addition to the study methodology. The two-year post-discharge recidivism rate has averaged around 47% over six years of measurement, with a range of 43% to 52%. The three-year post-discharge recidivism rate averaged 55% over five years of measurement, with a range of 52% to 61%. In summary, over half of committed youth are convicted or adjudicated on a new felony or misdemeanor offense within three years of discharging from the Division.

Figure 3: Recidivism Trends (One, Two, and Three Years Post-Discharge)



The three cohorts of interest in this study.

MULTI-YEAR RECIDIVISM RESULTS

The table that follows (Table 1) reports the recidivism rates across all three cohorts of interest in this study. The three unique cohorts of discharged youth were examined by follow-up period to see how many youth recidivated after one, two, and three years post-discharge. See Table 1 for details on multi-year recidivism rates.

Table 1: Recidivism Rates by Discharge Cohort

Youth Discharge Cohort	One-Year Recidivism Rate	Two-Year Recidivism Rate	Three-Year Recidivism Rate
FY 2016-17 cohort (<i>N</i> = 442)	34.4%	TBD*	TBD*
FY 2015-16 cohort (<i>N</i> = 445)	31.5%	52.1%	TBD*
FY 2014-15 cohort (<i>N</i> = 476)	30.9%	49.2%	61.1%

*Rates TBD; available in forthcoming reports

FY 2016-17 Cohort

The FY 2016-17 discharge cohort (*N* = 442) has currently been tracked for one year following discharge from DYS. The one-year recidivism rate for this cohort was 34.4%. The two- and three-year rates will be reported once the allotted two- and three-year time periods have concluded.

FY 2015-16 Cohort

The FY 2015-16 discharge cohort (*N* = 445) has been tracked for two years following discharge from DYS. The one- and two-year recidivism rates for this cohort were 31.5% and 52.1%, respectively. The three-year recidivism rate will be reported once the allotted three-year time period has concluded.

FY 2014-15 Cohort

The FY 2014-15 discharge cohort (*N* = 476) has been tracked for three years following discharge from DYS. The one-, two-, and three-year recidivism rates for this cohort were 30.9%, 49.2%, and 61.1%, respectively.

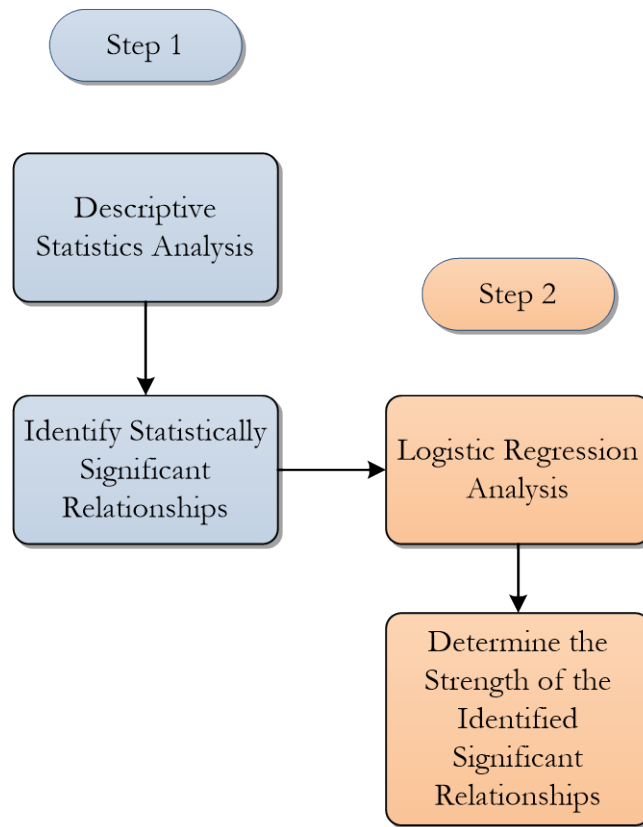
RECIDIVISM ANALYSIS COHORT

Statistical Analysis Steps

Conducting statistical analysis is a scientific process that must, like all science, adhere to a series of procedures or steps. Each of these steps is guided by the data, and the results of the analyses conducted within each step dictate what additional analyses can be conducted. Simply put, the analysis begins with basic tests of the relationships between a number of independent variables identified by the literature and larger body of juvenile justice research as contributing to recidivism (the dependent variable in this case: being a recidivist). Any variables found to have a significant relationship are thought to create a

“model” for accurately predicting an outcome (being a recidivist) based on the data. Next, this model is subjected to more sophisticated analyses in order to test the *strength* of any relationships previously identified as being statistically significant (see Figure 4).

Figure 4: Statistical Analysis Steps



Step 1: Descriptive Statistics

The table that follows (Table 2) details some basic descriptive differences between youth who recidivated and youth who did not recidivate within one year of discharge (FYs 2014-15, 2015-16, and 2016-17 discharge cohorts combined into one, larger Analysis Cohort). **Only those youth demographics which demonstrated differences that were statistically significant are displayed in Table 2.** For detailed information on the non-significant demographics examined, please refer to Appendix B. Please note that due to rounding, data presented in tables and figures may not sum to 100% throughout the report.

Table 2: Demographic Differences between Non-Recidivists and Recidivists (Analysis Cohort)

	Non Recidivists		Recidivists		<i>p</i> -value ¹	Effect Size ²	% of Total
	<i>n</i>	%	<i>n</i>	%			
Total (<i>N</i> = 1,350)^{3,4}	842	100%	508	100%			100%
1. Gender							
Male	699	83.0%	461	90.7%	0.000	0.11 (small)	86%
Female	143	17.0%	47	9.3%			14%
2. Number of Escapes⁵							
None	402	47.7%	168	33.1%	0.000	0.14 (small)	42.2%
One or more	440	52.3%	340	66.9%			57.8%
3. Mean Age at First Adjudication							
	14.9 years		14.6 years		0.003		14.8 years
4. Prior Number of Adjudications							
None	260	30.9%	99	19.5%	0.000	0.15 (small)	26.6%
One	235	27.9%	149	29.3%			28.4%
Two	196	23.3%	116	22.8%			23.1%
More than Two	151	17.9%	144	28.3%			21.9%
5. Parole Discharge Rating⁶							
Unsatisfactory	277	32.9%	272	53.5%	0.000	0.21 (small)	40.7%
Satisfactory	144	17.1%	74	14.6%			16.1%
Excellent	365	43.3%	138	27.2%			37.3%
Not on Parole at Time of Discharge	56	6.7%	24	4.7%			5.9%
6. VRA Commitment Offense							
VRA Offense	395	46.9%	179	35.2%	0.000		43%
Non-VRA Offense	447	53.1%	329	64.8%		58%	

(Table continued on following page)

Table 2 (continued): Demographic Differences between Non-Recidivists and Recidivists (Analysis Cohort)

	Non Recidivists		Recidivists		<i>p</i> -value	Effect Size ¹	% of Total
	<i>n</i>	%	<i>n</i>	%			
7. Program at Discharge							
Program in Place	630	74.8%	347	68.3%	0.01	0.01 (weak)	72.4%
No Program	212	25.2%	161	31.7%			27.6%
8. CJRA Overall Risk Level at Discharge⁷							
Not High	296	39.5%	123	26.0%	0.000	0.14 (small)	34.3%
High	453	60.5%	350	74.0%			65.7%
9. Secure Need Factors							
Zero	113	13.4%	48	9.4%	0.04	0.08 (weak)	11.9%
One	284	33.7%	158	31.1%			32.7%
Two	267	31.7%	192	37.8%			34.0%
More than Two	178	21.1%	110	21.7%			21.3%

¹ $p < 0.05$ (indicates a statistically significant difference between recidivists and non-recidivists).

² An effect size is considered large at 0.5, medium at 0.3, small at 0.1, and weak when below 0.1.

³ Nine youth discharged in more than one FY due to consecutive sentences, new commitments, etc. Of these nine youth, five were found to be exclusively identified as either a recidivist or a non-recidivist in both discharge years, thus sustaining the assumptions of the tests of statistical significance employed. For the purposes of the demographic analyses, these five youth were only counted once within the demographics analyses to avoid "double-counting" individual characteristics of recidivists and non-recidivists.

⁴ Four of the nine youth who discharged in multiple FYs were excluded from the analysis cohort due to their dual recidivist and non-recidivist status in different discharge years, which violates the assumptions of the tests of statistical significance employed.

⁵ An escape, for the purposes of this study, is defined as a period of time when a youth absconds from a commitment facility, a community placement, or from parole for four hours or longer without permission.

⁶ The Parole Discharge Rating is the level at which the client manager determines the youth to be at discharge in regard to parole compliance, which is based on pre-determined criteria.

⁷ Only valid CJRAs administered at discharge were included in the analysis. A discharge CJRA is considered to be valid if it is both complete and was administered within 90 days of discharge. A total of 1,222 youth in the Analysis Cohort had a valid discharge CJRA (91%).

While Table 2 provides detailed information regarding those demographics found to have a significant relationship with recidivist status, it does not represent the total number of demographics examined. A brief overview of all of the demographics examined is provided in Table 3. Each year, a variety of demographic variables are examined for possible significant relationships, including those of interest to current policies, initiatives, etc. In the current report, these included but were not limited to: the total amount of time youth spent in placements away from their homes or communities (length of service total residential placements), mean length of time spent on parole, whether youth spent more or less than six months on parole, and whether or not a mental health intervention was required at commitment. None of these variables was found to have a significant relationship with recidivist status.

Table 3: Demographic Variables Examined for Non-Recidivists and Recidivists (Analysis Cohort)

Differences between Recidivists and Non-Recidivists¹		
Variables	Significant?	
Gender	Yes	✓
Number of Prior Escapes	Yes	✓
Age at First Adjudication	Yes	✓
Number of Prior Adjudications	Yes	✓
Parole Rating at Discharge	Yes	✓
VRA Commitment Offense	Yes	✓
Program at Discharge	Yes	✓
CJRA Overall Risk Level at Discharge	Yes	✓
Secure Need Factors	Yes	✓
Age at Discharge	No	✗
Age at Commitment	No	✗
On Parole For More or Less than Six Months	No	✗
Length of Service Total Residential Placements	No	✗
Mean Length of Parole	No	✗
Minority/Non-Minority Ethnicity	No	✗
DYC Committing Offense Charge	No	✗
Region	No	✗
Mental Health Intervention Required	No	✗

¹ Additional variables were examined for analysis, but were not tested as the distribution of data between groups was too unequal to continue. These variables included placement at discharge and sex offender status.

Summary of Descriptive Analyses

Demographic Differences Found between Recidivists & Non-Recidivists

An extensive analysis of potentially differential demographic characteristics (variables) was conducted in order to determine which traits best characterized youth who recidivated. In other words, the analysis that follows attempts to define, in very general terms, significant associations between characteristics of youth who recidivate when compared to youth who did not recidivate. As was anticipated, increasing the analysis sample size did, in fact, generate sufficient statistical power to detect significant between-groups differences for variables identified by the literature to be linked to juvenile recidivism. The 9 characteristics that generated significant findings are shown in Table 2 and are summarized below.

1. Gender

The overwhelming majority of youth in the Analysis Cohort were male (86%). When examined by gender, a larger percentage of females were non-recidivists (17%; $n = 143$) than were recidivists (9.3%; $n = 47$). The relationship between gender and recidivism was statistically significant with a weak effect size (Phi) ($p < 0.000$; Phi = 0.11). Generally speaking, an effect size is a statistical tool used with certain tests to illustrate practical or meaningful differences observed, and can be thought of as a measurement of the *amount of impact* an independent variable (gender, in this case) has on a dependent variable (being a recidivist). It should be noted, however, that the number of female recidivists in the analysis sample remained very small, despite aggregating three years of one-year cohort data ($n = 47$). This very small sample size excluded the possibility of performing additional within-groups analyses comparing female recidivists to their male counterparts.

2. Number of Escapes

An escape, for the purposes of this study, is defined as a period of time when a youth absconds from a commitment facility, a community placement, or from parole for four hours or longer without permission. Although more than half (57.8%) of all youth in the Analysis Cohort had an escape at some point prior to discharge, a larger percentage of non-recidivists (47.7%; $n = 402$) did not escape compared to recidivists (33.1%; $n = 168$). Similarly, a larger percentage of recidivists (66.9%) had one or more prior escapes compared to non-recidivists (52.3%). The relationship between having a history of escapes and recidivism was statistically significant, though the effect size was small ($p < 0.000$, Phi = 0.14).

3. Average Age at First Adjudication

The average age at which youth in the Analysis Cohort were first adjudicated for a delinquent offense was 14.8 years. Recidivists were younger (14.6 years) than their non-recidivist counterparts (14.9 years), and the relationship of age at first adjudication and being a recidivist was significant ($p = 0.03$). This finding is consistent with the literature on juvenile delinquency, which finds that the likelihood of becoming an adult offender is greater among youth who demonstrate an early onset of criminality, are chronic delinquents, and commit violent offenses [1] [3] [4].

4. Prior Number of Adjudications

Forty-five percent of youth in the Analysis Cohort had two or more prior adjudications. There were fewer recidivists with zero prior adjudications (19.5%) compared to non-recidivists (30.9%), and a larger number of recidivists with more than two prior adjudications (28.3%) compared to non-recidivists (23.3%) ($p < 0.000$, Phi = 0.15). Generally speaking, youth with multiple prior adjudications may possess a tolerance or acceptance for a deviant life course or trajectory, which would be consistent with behaviors associated with recidivism [1] [3].

5. Parole Rating at Discharge

The Parole rating at discharge is the level at which the client manager determines the youth to be in regard to parole compliance (based on pre-determined criteria) at discharge. The goal of the Division is that each youth earns either a Satisfactory or Excellent parole rating at discharge. Unfortunately, some youth ultimately discharge from parole with an Unsatisfactory rating (40.7% in the Analysis Cohort). An Unsatisfactory parole rating at discharge indicates a high level of non-compliance; however, the Division relinquishes all supervision and authority over youth once the parole sentence has been served and youth are discharged from the Division.

A closer look at the 40.7% revealed that recidivists comprised a larger percentage of youth with an Unsatisfactory rating (53.5%) compared to non-recidivists (32.9%), a significant relationship with a small effect size ($p < 0.000$; $\Phi = 0.21$). Similarly, recidivists represented a smaller percentage of youth receiving either a Satisfactory or Excellent rating compared to non-recidivists. While 17.1% of non-recidivists received a Satisfactory parole rating, only 14.6% of recidivists received this rating. In addition, 43.3% of non-recidivists received an Excellent parole rating compared to only 27.2% of recidivists.

6. VRA Commitment Offense

Crimes that fall under Colorado's Victim Rights Act (VRA) can generally be thought of as crimes committed against persons, and typically include specific victims. Examples of these types of crimes include but are not limited to: homicide, assault, sexual assault, kidnapping, and robbery. Please see Appendix C for a complete list of crimes that fall under the Victim Rights Act. Most youth in the Analysis Cohort were not committed to DYS for a VRA crime (58%). A larger percentage of non-recidivists were committed to DYS for a VRA crime (46.9%) compared to recidivists (35.2%), a significant relationship ($p < 0.000$).

7. Program at Discharge

It is the Division's goal to have every youth engaged in either a full- or part-time program at discharge. A youth is considered to have a program in place at discharge if they are either employed, enrolled in school or vocational training, performing community service, parenting, or have other consistent responsibilities in place. Nearly three-quarters of the youth in the Analysis Cohort had a program in place at discharge (72.4%). A larger percentage of non-recidivists had a program in place at discharge (74.8%; $n = 630$) compared to recidivists (68.3%; $n = 347$), a significant relationship with a weak effect size ($p = 0.01$, $\Phi = 0.1$).

8. CJRA Overall Risk Level at Discharge

Nearly two-thirds (65.7%) of youth in the Analysis Cohort with a valid Colorado Juvenile Risk Assessment (CJRA) administered at discharge scored as High risk to recidivate. The discharge CJRA is

considered to be valid if it was both complete and administered within 90 days of discharge. A total of 1,222 (91%) of youth in the Analysis Cohort had a valid CJRA administered at discharge. Recidivists represented a larger percent of youth scoring High risk compared to non-recidivists. Nearly three-quarters (74%) of recidivists scored as High risk on the discharge CJRA compared to 60.5% of non-recidivists. Similarly, recidivists represented a smaller percentage of youth scoring as not High risk to recidivate compared to non-recidivists (26% and 39.5%, respectively), a relationship that was significant with a small effect size ($p < 0.000$; $\Phi = 0.14$).

9. Secure Need Factors

The overwhelming majority of youth in the Analysis Cohort had at least one secure need factor (88%). Secure need factors refer to certain youth characteristics identified during DYS assessment process that indicate a need for placement in a secure facility. Specifically, these secure need factors include scoring in the secure need range on the Commitment Classification Instrument administered during assessment, having a special sentence, having more than one recommitment, having a history of more than two out-of-home placements, and having a history of one or more escapes. The large percentage of youth with a need for secure placement is important to consider, especially in conjunction with the significant decline in the population of youth committed to DYS. Specifically, while the Division has noted an overall decline in the number of youth committed over the past decade, the number of committed youth who are assessed to require a secure placement has increased. This increase reflects statewide efforts to divert low-risk and low-level juvenile offenders toward alternatives to incarceration. There was a larger percentage of recidivists with two (37.8%) and more than two (21.7%) secure need factors compared to their non-recidivist counterparts (31.7% and 21.1%, respectively), and a smaller percentage of recidivists with zero (9.4%) secure need factors compared to non-recidivists (13.4%). These relationships were statistically significant, but the strength of the relationship (e.g.: effect size) was weak ($p = 0.04$; $\Phi = 0.08$).

Step 2: Logistic Regression Analysis

Logistic regression analysis is a statistical modeling technique that seeks to quantify the degree to which two groups are different based on the characteristics identified during the initial descriptive analysis (step 1). While the initial analysis examined whether or not a significant relationship exists between those characteristics of youth who recidivate and youth who do not recidivate, the analysis that follows attempts to demonstrate the strength and direction of the observed differences. The results of the logistic regression estimate the probability of an event (being a recidivist) occurring, and can be interpreted as the odds of a youth in the population being a recidivist based on the variables present in the model.

A binomial logistic regression model was fit for the nine variables found to be predictive of recidivism in the descriptive analysis (step 1) in an effort to determine which youth characteristics had the most influence on recidivism when all other differential variables were considered. The results of this type of

analysis are interpreted in terms of probability using an odds ratio (OR). The greater the odds ratio, the more likely an individual with a particular characteristic is to be a recidivist when taking into account other possible factors. Conversely, the smaller the odds ratio, the less likely an individual with a particular characteristic is to be a recidivist.

Summary of the Logistic Regression

Which Characteristics Were MOST Predictive of Recidivism (Presented as Odds Ratios)?

There were 1,350 youth in the Analysis Cohort, with 508 re-offending within the one-year follow-up period (37.6%). One variable in the model found to have a significant relationship to being a recidivist, CJRA overall risk level at discharge, included only those youth with a valid discharge CJRA ($n = 1,222$). Thus, the sample size for the analyses that follows was 1,222, or 90.5% of the total number of unique youth in the Analysis Cohort. A binomial logistic regression model was created that included each of the nine individual-level characteristics found to be significant among recidivists described in the previous section: gender, number of escapes, age at first adjudication, number of prior adjudications, parole rating at discharge, having a VRA crime as a commitment offense, having a program in place at discharge, CJRA overall risk level at discharge, and number of secure need factorsⁱ ⁱⁱ. The model sought to further examine the relationship between these variables and being a recidivist, with the goal of developing a formula for making predictions about recidivism based on the observed values of the independent variables. In this model, 5 of the 9 variables (gender, number of prior adjudications, parole rating at discharge, having a VRA crime as a commitment offense, and CJRA overall risk level at discharge) were found to be predictive of recidivism (see Table 4). One variable, having one or more prior escape, approached significance ($p = 0.056$). The significant findings are reported in the pages that follow.

ⁱ There were two studentized residuals with values greater than two standard deviations kept in the analysis.

ⁱⁱ Linearity of the continuous variables with respect to the logit of the dependent variable was assessed via the Box-Tidwell procedure. A Bonferroni correction was applied using all 20 terms in the model resulting in statistical significance being accepted when $p < .00025$. Based on this assessment, the continuous independent variable was found to be linearly related to the logit of the dependent variable.

Table 4: Characteristics Predictive of Recidivism (Presented as Odds Ratios)

Characteristics Predictive of Recidivism		
	Recidivists	Odds Ratio*
Gender	Male	1.8
Prior Adjudications	Three or More Prior Adjudications	2.1
Parole Rating at Discharge	Unsatisfactory	2.2
VRA Commitment Offense	Non-VRA Crime	1.7
CJRA Overall Risk Level at Discharge	High Risk	1.5

*The Odds Ratio represents the odds that an outcome (being a recidivist) will occur given the presence of certain characteristics.

GENDER

In the Analysis Cohort, the odds of being a recidivist were 1.8 times greater for males compared to females. This finding is consistent with national studies which have repeatedly indicated that males are more at risk for delinquency and criminality than are females, controlling for all other variables [5] [6] [7].ⁱⁱⁱ

NUMBER OF PRIOR ADJUDICATIONS

Youth with a larger number of prior adjudications had increased odds of being a recidivist compared to youth with a zero prior adjudications. Among youth with three or more prior adjudications, the odds of being a recidivist increased by a factor of 2.1 compared to youth with zero prior adjudications controlling for all other variables.^{iv} Compared to youth with no prior adjudications, for youth with one prior adjudication the odds of being a recidivist is increased by a factor of 1.5 holding all other variables constant. Finally, for youth with two prior adjudications, the odds of being a recidivist increased by a factor of 1.4 compared to youth with no prior adjudications.

PAROLE RATING AT DISCHARGE

The odds of being a recidivist for youth who discharged with an Unsatisfactory parole rating were 2.2 times greater compared to youth with an Excellent parole rating.^v As is consistent with the results of prior analyses, youth who discharged with either a Satisfactory or Excellent parole rating at discharge had lower odds of being a recidivist compared to youth with an Unsatisfactory parole rating at

ⁱⁱⁱ Males: OR = 1.83, 95% Confidence Interval (CI): 1.26-2.67, $p = 0.002$

^{iv} Number of prior adjudications: 3 adjudications: OR = 2.1, CI: 1.4-3.0, $p < 0.000$; 2 adjudications: OR = 1.4, CI: 1.0-2.1, $p = 0.049$; 1 adjudication: OR = 1.5, 95% CI: 1.0-2.1, $p = 0.03$

^v Unsatisfactory parole rating at discharge compared to Satisfactory: OR = 1.9, 95% CI: 1.3-2.8, $p = 0.001$; compared to Excellent: OR = 2.2, CI: 1.5-3.1, $p < 0.000$

discharge. For youth who discharged with an Unsatisfactory rating, the odds of being a recidivist were 1.9 times greater compared to youth who discharged with a Satisfactory parole rating at discharge, when controlling for all other variables.

VRA CRIME AS THE COMMITMENT OFFENSE

In general, VRA crimes are those whose victim is a person. Most youth in the Analysis Cohort were committed to the Division for a crime that did not fall under the VRA crimes statute ($n = 724$). Youth who were not committed to the Division for a VRA crime had 1.7 times the odds of being a recidivist compared to youth who were committed for a VRA crime, controlling for all other variables.^{vi} This finding aligns with the literature on offenders who commit property crimes being more likely to recidivate, when compared to offenders who commit crimes against persons [8].

CJRA OVERALL RISK (FOR RECIDIVISM) LEVEL AT DISCHARGE

Very few youth scored as Low risk to recidivate on the discharge CJRA ($n = 90$) compared to youth who scored as High ($n = 803$) or Moderate ($n = 329$). Given these unequal group sizes for comparison, youth scoring either Low or Moderate risk to recidivate were combined into one group (“Not High,” $n = 419$) and were compared to youth in the High risk to recidivate group ($n = 803$). Youth who scored as High risk for recidivism had 1.5 times the odds of being a recidivist compared to youth who scored as Not High risk, when controlling for all other variables.^{vii}

Which Characteristics Were Non-Predictive?

When controlling for all other variables:

- The number of prior escapes was not found to be predictive of recidivism, but approached significance ($p = 0.056$).
- The age at first adjudication was not found to be predictive of recidivism.
- Having a program in place at discharge was not found to be predictive of recidivism.
- The number of secure need factors was not found to be predictive of recidivism.

^{vi} Non-VRA crime as a commitment offense: OR = 1.7, 95% CI: 1.3-2.2, $p < 0.000$

^{vii} High overall risk to recidivate score on discharge CJRA: OR = 1.5, 95% CI: 1.1-2.0, $p = 0.01$

A Note on Males vs. Females

Given the number of females ($n = 190$ total, $n = 47$ recidivists) in the Analysis Cohort, it was not possible to draw meaningful predictive comparisons between male and female recidivists, even after aggregating three years of the one-year post-discharge cohorts into one, larger cohort. In general, descriptive terms, females comprised 14% of the total one-year post-discharge population (males = 86%), and had a recidivism rate of 25.0% compared to males who had a recidivism rate of 39.7%.

COLORADO JUVENILE RISK ASSESSMENT (CJRA)

CJRA RESULTS

The Colorado Juvenile Risk Assessment is an actuarial instrument that is utilized by DYS to assist in predicting a youth's risk of recidivism. The CJRA is based on the Washington State Juvenile Court Assessment, which has been shown to be predictive of recidivism in several validation studies, with juvenile probation populations. The CJRA was developed using 12 domains of risk and protective factors and has been shown to be a useful tool to identify psychosocial criminogenic domains susceptible to recidivist tendencies in individual youth [9].

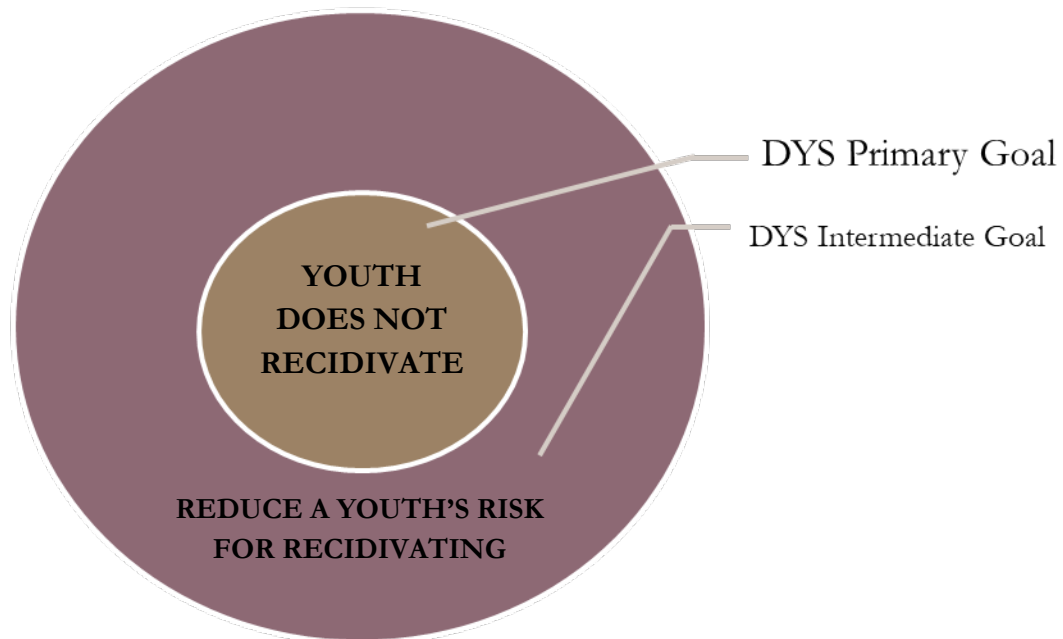
Every youth committed to DYS is assessed for criminogenic risk and protective factors, both from a static and dynamic perspective. Static domains are based on historical data which cannot be improved with treatment (such as gender, criminal history or history of substance abuse). In contrast, dynamic domains are based on a youth's current living and social factors, which can be targeted during commitment with appropriate treatment and services in order to reduce risk (such as attitudes and behaviors).

The CJRA is utilized by DYS to assess an individual's risk for recidivism at specified points in time. Typically, the CJRA is administered at assessment to assist in developing programming specifically targeting individual treatment needs, and then is re-administered prior to parole and prior to discharge. For this analysis, the focus has been narrowed to CJRAs administered during assessment and at the time of discharge from DYS. Re-assessment of risk and protective factors at critical junctures during a youth's commitment and parole sentence allows assessment staff, client managers, and Multi-Disciplinary Teams (MDTs) to accurately gauge a youth's current risk of recidivism, and informs treatment decisions based upon a youth's most current needs. The primary goal of DYS is to decrease recidivism among its youth population by targeting criminogenic risk while increasing protective factors before a youth is discharged from the Division.

For most youth, a final CJRA re-assessment is completed upon discharge. This final risk assessment is called a youth's discharge CJRA. Nearly all of the 1,350 youth in the Analysis Cohort had a valid discharge CJRA (91%; $n = 1,222$). A discharge CJRA is considered to be valid if the assessment was complete and was administered within 90 days of a youth's discharge date. An incomplete CJRA typically occurs when a youth refuses to complete the assessment.

While each youth is assessed several times throughout his/her commitment to DYS, the last CJRA administered is given the most weight in regard to predicting future recidivism. As the instrument measures a youth's risk for recidivism at a specific point in time, the CJRA completed *closest to discharge* best describes a youth's risk trajectory when s/he is preparing to fully integrate back into the community after completing DYS supervision. Furthermore, research indicates that a youth's most recent risk assessment is the most predictive of future re-offending behavior [10].

Figure 5: DYS Goals for Committed Youth



Risk Reduction from Commitment to Discharge

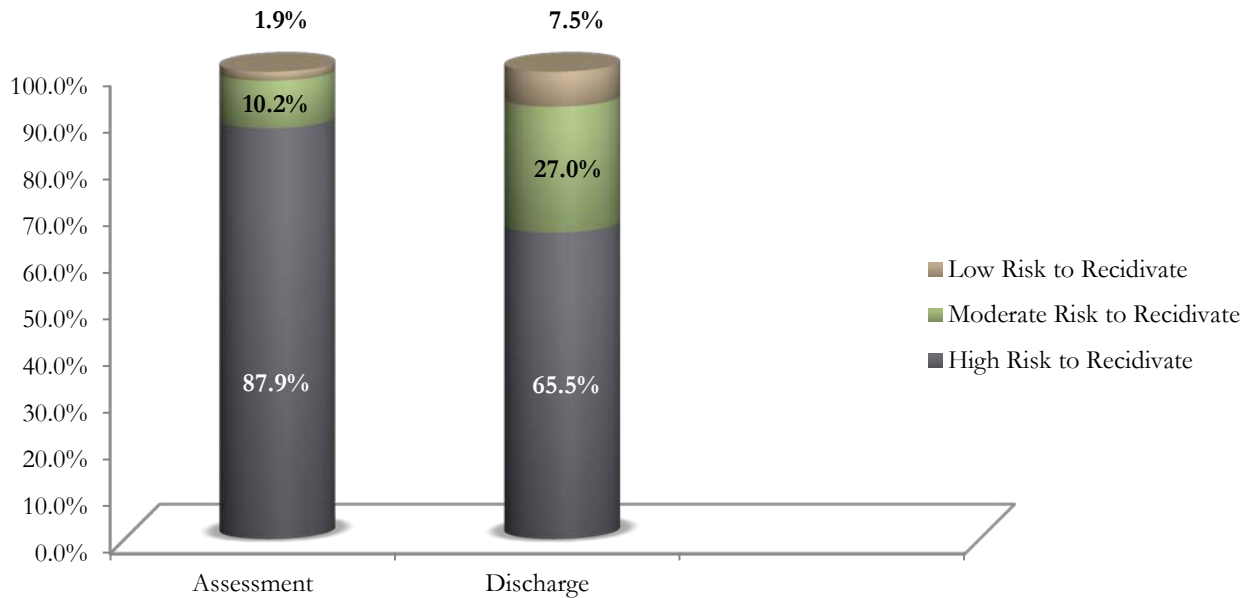
The Division's primary goal is that youth discharged from DYS do not recidivate (see Figure 5). In other words, the Division's primary goal is a lag measure, meaning the outcome is unknown until the one-, two-, and three-year post-discharge follow-up periods have passed for each discharged youth. Although actual recidivism cannot be determined sooner, there is another measure (an intermediate goal) that *can* be measured while a youth is still serving his or her commitment sentence—the youth's *risk* for recidivism. Recidivism risk assessments, like the CJRA, can determine whether a youth's risk for recidivating has been reduced over the course of treatment and services provided during commitment. As adjudicated youth are at increased risk of committing a new offense in the future due to their criminal history, criminogenic risk reduction is critical to overall reductions in recidivism, as criminogenic risk reduction results in a reduction in risk to re-offend [11] [12] [13]. Thus, one of DYS' key intermediate goals is reducing criminogenic risk.

CJRA OVERALL RISK LEVEL

When youth are committed to DYS, the vast majority score as High risk to re-offend in the future. Among the Analysis Cohort, 87.9% scored as High risk to recidivate at assessment ($n = 1,042$), and only 12.1% scored as Low or Moderate risk ($n = 143$) (see Figure 6). When examined at discharge, however,

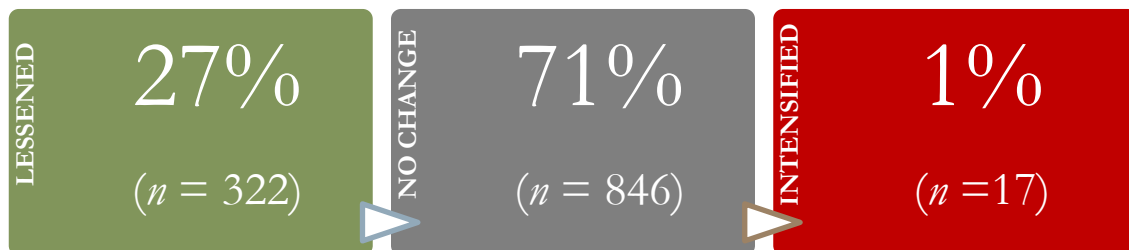
65.5% of the Analysis Cohort scored as High risk ($n = 776$), and 34.5% scored as Low or Moderate risk ($n = 409$). Only youth with both a valid assessment and discharge CJRA were included in the analysis ($N = 1,185$). The results of the analysis revealed that the Analysis Cohort demonstrated a statistically significant reduction in recidivism risk (re: CJRA levels) from assessment to discharge after receiving treatment and services from DYS ($\chi^2 = 461.079$, $df = 4$, $p < 0.000$).

Figure 6: CJRA Overall Risk Level Changes from Assessment to Discharge (Analysis Cohort)



The Analysis Cohort experienced a 25.5% ($n = 266$) reduction in High risk to recidivate scores, and even more dramatic gains in the Moderate (164.5%; $n = 320$) and Low risk (304.5%; $n = 89$) scores. Unfortunately, while the percentage of High risk youth was significantly reduced from commitment to discharge, the majority of youth maintained a High risk score at discharge.

Figure 7: CJRA Overall Risk Level Changes (Lessened, No Change, Intensified) (Analysis Cohort)



For many of these youth who did not have a change in their risk level, their individual score may actually have decreased, but the change was not sufficient to move them to a lower risk level category. When examined further (see Figure 7), over one quarter of youth (27%) lessened their risk level from DYS assessment to discharge. This reduction includes those who initially scored as High risk at assessment and then scored as Moderate risk at discharge, those who moved from Moderate to Low risk scores, or even those who moved from High to Low risk scores. The largest percent of youth scored as the same risk for recidivism at assessment and discharge (71%). In other words, these youth were committed to DYS with a High risk for recidivism, and discharged with the same High risk. Finally, one percent (1%, $n = 17$) of youth in the Analysis Cohort experienced an intensified risk level between assessment and discharge.

This last finding is relevant as it relates to the *Do No Harm* philosophy in corrections. The Division strives to reduce risk among its juvenile population, but is also dedicated to ensuring that lower level offenders are not at an increased risk for recidivism at discharge. As the third box of Figure 7 illustrates, roughly 1% of youth in the Analysis Cohort ($n = 17$ youth) increased their risk to recidivate between assessment and discharge. Fifteen of these youth were assessed as Moderate risk upon commitment to DYS and scored as High risk to recidivate at discharge, while the remaining two youth were assessed as Low risk at assessment and then scored as Moderate risk at discharge. A substantial body of literature points to the iatrogenic effects of incarcerating lower risk youth as well as treating Low risk youth with intensive services [14]. As Social Learning Theory suggests, these lower risk youth may learn anti-social skills from High risk youth that they may not have otherwise been exposed to if not incarcerated [15] [16].

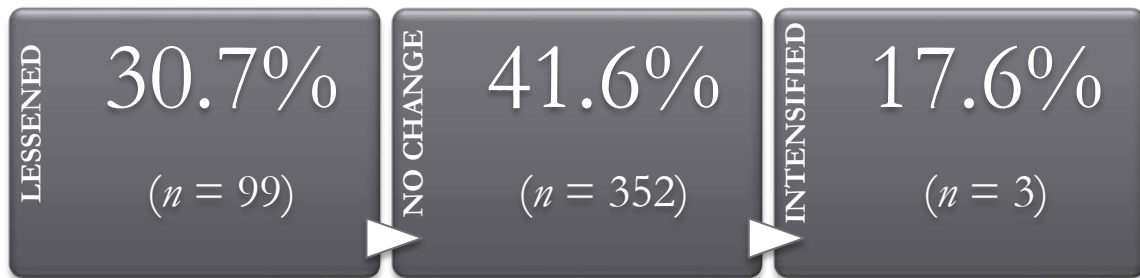
Recidivism Rates by CJRA Overall Risk Level Changes

In general, for those youth with observed decreases in risk level from assessment to discharge, it can be posited that DYS treatment was effective in terms of targeting the risk factors associated with recidivism. In contrast, those youth who did not have a change in risk level may not have responded as positively to treatment. Finally, treatment was perhaps deleterious to those youth who experienced an intensified (or increased) risk level.

The recidivism rate for youth with a lessened risk level confirms that the change in risk level itself can have an effect on recidivism. As shown in Figure 8, youth whose risk score was lessened after DYS treatment and services had a recidivism rate of 30.7% one year after discharge (lower than the average rate of 34.4% for the Analysis Cohort). Youth with no change in risk score had a recidivism rate of 41.6% one year after discharge, slightly higher than the one-year rate for the Analysis Cohort. The 17 youth in the Analysis Cohort who had an aggravated risk score after being committed to DYS had a recidivism rate of 17.6% one year after discharge, although caution should be used when interpreting outcomes with such a small group ($n = 3$ recidivists). The observed differences in recidivism rates compared by risk level changes from assessment to discharge were statistically significant ($\chi^2 = 14.76$, df

= 2, $p = 0.001$). An investigation into the fourteen youth with aggravated CJRA risk levels who had not recidivated revealed that seven had committed a recidivist act after their one-year post-discharge follow-up period ended and will be captured in future follow-up time periods. Among the remaining 7, three discharged in FY 2016-17, 1 discharged in FY 2015-16, and the remaining 3 discharged in FY 2014-15. This is consistent with the Time to Recidivist Offense data presented in Figure 24 (see page 49), where 94% of youth who recidivate do so within 24 months of discharge.

Figure 8: Recidivism Rates by CJRA Overall Risk Level Changes (Analysis Cohort)



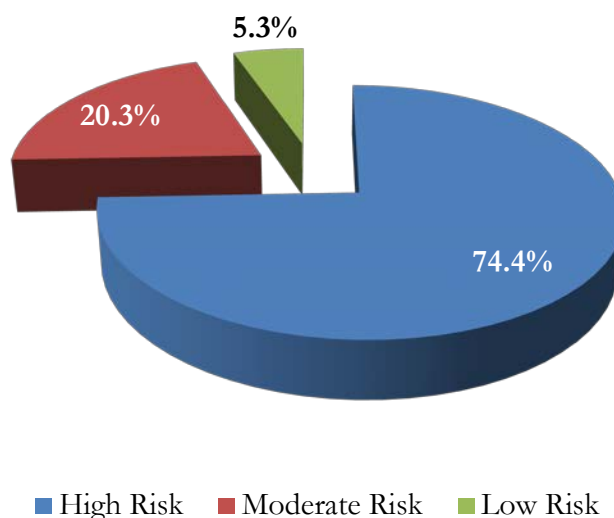
Sensitivity of the CJRA

Human behavior is unpredictable by nature, and thus incredibly difficult to predict with accuracy [17]. The use of actuarial risk assessments provides some insight into the probability that those who possess certain characteristics might re-offend in the future [18]. From a research perspective, the “sensitivity” of an assessment tool is a term used to describe the number of cases that are correctly identified by the tool. In this assessment, the term sensitivity is used to describe the proportion of youth in each cohort who recidivated and also scored High risk to recidivate on the CJRA. If the CJRA is sufficiently sensitive, it should correctly identify a large percentage of youth who eventually recidivate as High risk to recidivate.

As shown in Figure 9, 74.4% of recidivists in the Analysis Cohort scored as High risk to recidivate on their discharge CJRA. Comparatively, 5.3% of youth who scored as Low risk on the discharge CJRA committed a recidivist act. These findings indicate that the CJRA is sensitive enough to correctly identify nearly three quarters of youth who recidivate.

Figure 9: CJRA Discharge Overall Risk Levels for Recidivists (Analysis Cohort)

Recidivist Discharge CJRA Risk Scores



Positive Predictive Value of the CJRA

Within the context of this study, the positive predictive value of the CJRA is defined as the proportion of youth who score as High risk who actually go on to recidivate. If the CJRA is accurately assessing youth who are at the highest risk of recidivating, one would expect to see a large proportion of youth with High risk scores eventually recidivate. As shown in Table 5, among the population of youth who scored as High risk to recidivate, 43.6% ($n = 338$) had recidivated within one year (6% higher than the Analysis Cohort recidivism rate of 37.6%). Among those youth who scored as Moderate risk to recidivate, 28.7% ($n = 92$) had recidivated within one year (8.9% lower than the Analysis Cohort recidivism rate), and 27% of youth who scored as Low risk to recidivate ($n = 24$) had recidivated within one year (10.6% lower than the Analysis Cohort recidivism rate). In short, we are seeing a higher rate of recidivism among youth who scored High risk to recidivate compared to youth with Moderate or Low risk scores in each cohort, and the differences are statistically significant ($\chi^2 = 26.259$; $p < 0.000$; $\Phi = .15$). Generally speaking, the observed higher rate of recidivism among High risk youth indicates that the CJRA is internally valid and is measuring what it is intended to measure: youth who are at greater risk to recidivate in the future. In addition, the CJRA also appears to be externally valid in that it is possible to use the risk scores generated to assist in predicting future recidivism among the Division's youth population (e.g., predictive validity).

Table 5: Recidivism Rates by Discharge CJRA Risk Level (Analysis Cohort)

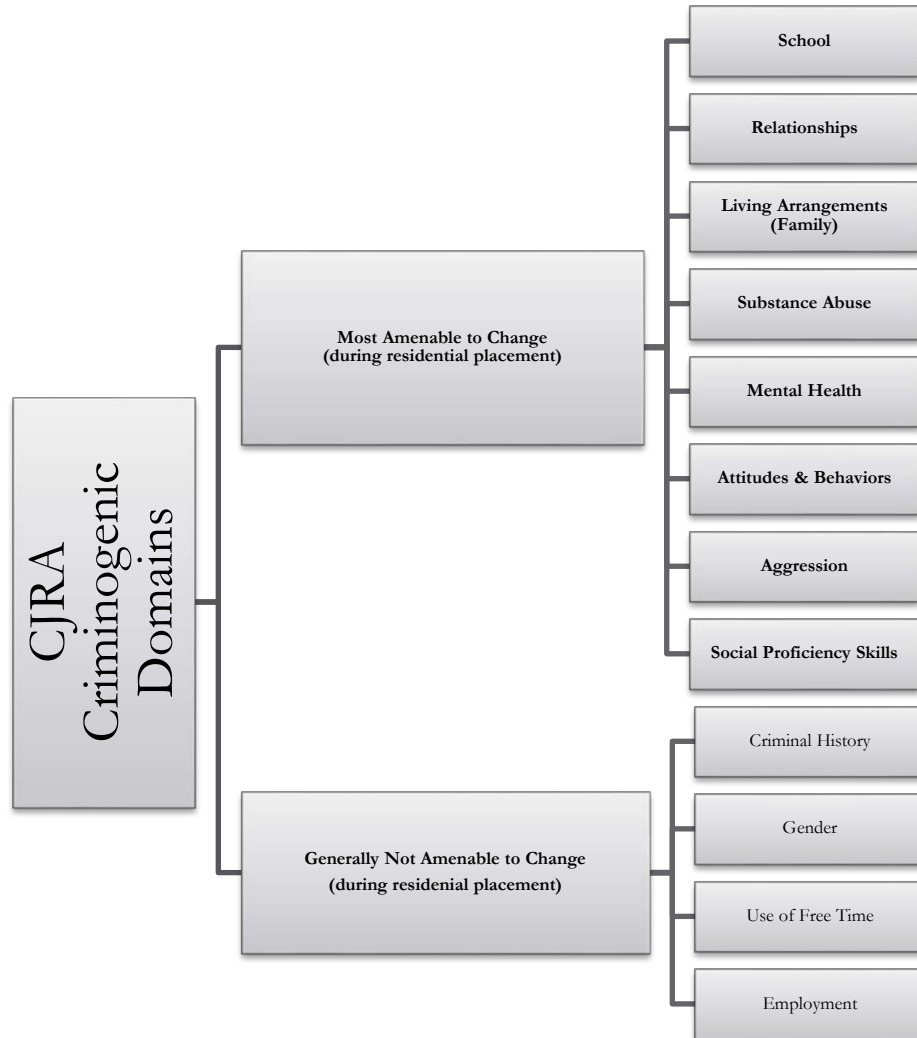
Recidivism Rate		
Discharge CJRA Risk Level ¹	Analysis Cohort	
	%	<i>n</i>
High (risk to recidivate)	43.6%	338
Moderate (risk to recidivate)	28.7%	92
Low (risk to recidivate)	27.0%	24
Total recidivism rate for youth with valid CJRAs	38.3%	454

¹ Only youth with a valid discharge CJRA were included in the analysis.

DOMAIN RISK LEVEL

The prior section focused on the CJRA overall risk level for recidivism (e.g.: Low, Moderate, High), while the current section will focus on individual criminogenic domains within the CJRA. Specifically, the analysis will center on the criminogenic domains on which the most youth frequently score as being High risk. In an effort to reduce the overall likelihood of re-offending, youth committed to DYS have treatment plans developed to specifically address their individual criminogenic needs. The CJRA is rooted in the 12 criminogenic domains presented in Figure 10.

Figure 10: Colorado Juvenile Risk Assessment Domains



Of the twelve CJRA domains, DYS focuses treatment plans on the eight domains that are most amenable to change during a youth’s commitment sentence (School, Relationships, Living Arrangements (Family), Substance Abuse, Mental Health, Attitudes & Behaviors, Aggression, and Social Proficiency Skills). These eight dynamic domains are pertinent to this analysis as they are the only domains where change can be influenced and measured with consistency through treatment and services. The remaining four domains are generally not amenable to change. Criminal History and Gender are static and cannot be changed. Use of Free Time and Employment are generally not amenable to change while youth are in secure residential placement, but may become so during parole or post-discharge.

REDUCTIONS IN RISK FACTORS OVER TIME

The analysis in this section focuses on calculated CJRA risk scores at the time of discharge. On average, more than 80% of the youth in the Analysis Cohort were committed to DYS and assessed as being High risk on four of the eight domains. At time of discharge, this average decreases to fewer than half scoring High risk on these same four domains (see Figure 11).

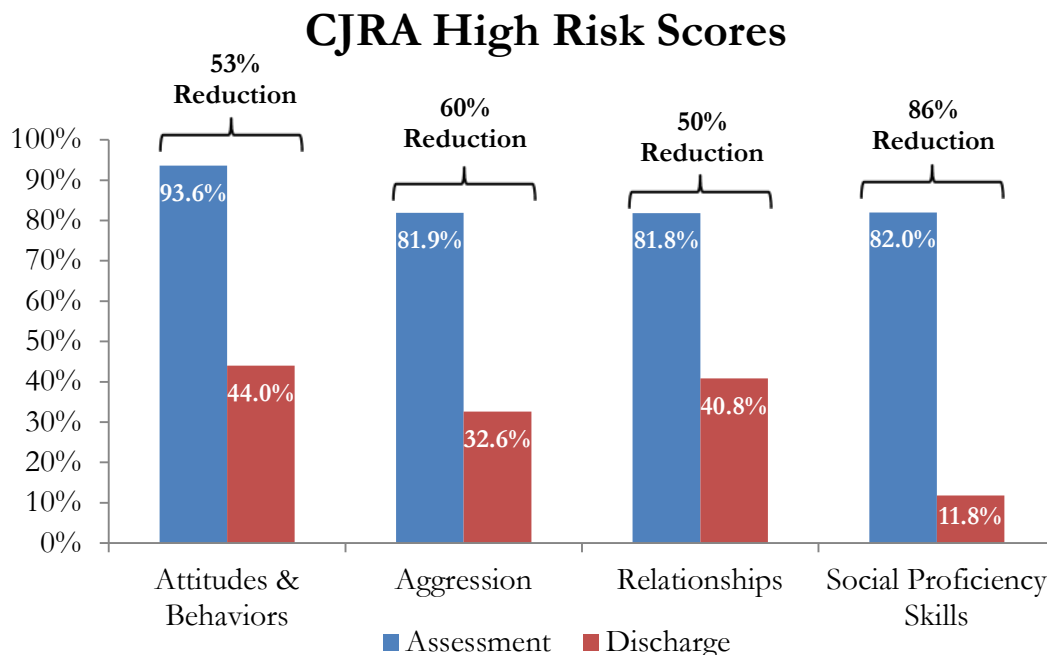
Assessment CJRA

On the assessment CJRA, the most frequent High risk domains included Attitudes & Behaviors (93.6% scored as High risk), Aggression (81.9% scored as High risk), Relationships (81.8% scored as High risk) and Social Proficiency Skills (82% scored as High risk).

Discharge CJRA

On the discharge CJRA assessment, the most frequent High risk domains were Attitudes & Behaviors (44% scored as High risk); Relationships (40.8% scored as High risk); and Aggression (32.6% scored as High risk). Each of these domains experienced greater than 50% reductions in the number of youth scoring as High risk to recidivate from assessment to discharge (see Figure 11).

Figure 11: Percentage of Youth Who Scored High Risk on Both Assessment & Discharge CJRAs, by Most Frequent High Risk Domain

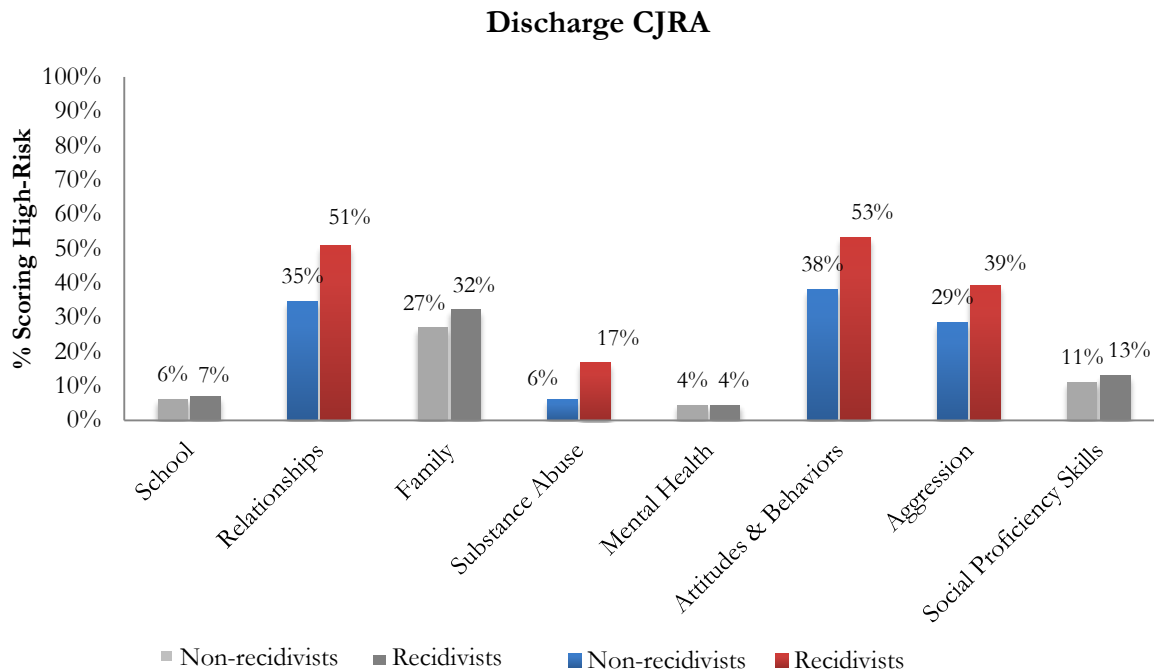


CJRA DOMAIN RISK FOR NON-RECIDIVISTS VS RECIDIVISTS

This section of the analysis will focus on the relationship between individual criminogenic risk factors (e.g.: CJRA domains) and rates of recidivism for youth who scored High vs. Not High risk (Low or Moderate risk) on each domain. For each domain, the percentage of recidivists who scored High risk was compared to the percentage of non-recidivists who were High risk, with the goal of determining if certain domains were more characteristic of future recidivism over the course of commitment. The shading in Figure 12 is intended to help demonstrate which domains were statistically significant. Only the domains that demonstrated a statistically significant difference between the percentage of non-recidivists and recidivists who scored High risk in that domain appear in color.^{viii}

Discharge CJRA

Figure 12: Percentage of Non-Recidivists vs. Recidivists Who Scored High Risk on the Discharge CJRA, by Domain



^{viii} As the CJRA administered closest to discharge (e.g.: the discharge CJRA) is considered to be the most valid for predicting who is at the greatest risk for recidivating, the analysis was limited to between groups differences in the risk scores on this discharge CJRA.

On the discharge CJRA, Figure 12 shows the percentage of non-recidivists who scored High risk in each CJRA domain versus the percentage of recidivists who scored High risk in each CJRA domain. It is informative to identify those domains on which youth scored High risk at discharge as well as the demographics of those who ultimately went on to recidivate. These differences help to reveal some of the reasons for subsequent criminogenic behavior within the population. A larger percentage of recidivists scored as High risk for recidivism on seven of the eight CJRA domains, with Mental Health being the only domain in which an equal percentage of non-recidivists (4%) scored as High risk compared to recidivists (4%).

Relationships

It is important to remember that the discharge CJRA happens after a youth has been on parole in the community for at least six months. This allows time for youth to regress to associating with anti-social peers and social networks, which can influence the percentage of youth who score High risk on this domain at discharge. Peer group influence is perhaps at its strongest during the teenage years when adolescents are seeking to define themselves, and the Relationships domain is an indicator of the degree to which a youth's relationships place him/her at risk for recidivism. On the discharge CJRA, 51% of youth who ultimately went on to recidivate scored High risk on the Relationships domain compared to 35% of those who did not recidivate ($\chi^2 = 30.687$, $df = 1$, $p < 0.001$) [19].

Substance Abuse

Substance abuse is a pervasive problem, particularly among juvenile populations, and pervasively among those with an early onset of alcohol, tobacco, or other drug use. The Alcohol and Drugs domain of the discharge CJRA measures current substance use as a risk factor for recidivism. When youth are committed to DYS, it is expected that youth do not have access to illicit substances or to substance using peers. Thus, given the threat of being caught violating this expectation and receiving sanctions and/or modified treatment plans, one would expect the current Alcohol and Drug use reported on the discharge CJRA to be quite low while youth remain under DYS supervision. Conversely, once a youth has discharged and no longer faces the same consequences for substance use, it would not be surprising for youth with a history of substance abuse to re-engage in substance use behavior with peers. On the discharge CJRA, 17% of youth who ultimately went on to recidivate scored as High risk on the Alcohol and Drugs domain, compared to 6% of those who did not recidivate ($\chi^2 = 36.548$, $df = 1$, $p < 0.001$) [20] [21] [22].

Attitudes and Behaviors

The same concepts described for the Relationships and Family domains are true for the Attitudes and Behaviors domain. Many youth relapse back into formerly established behaviors when they re-enter their homes, neighborhoods, and are surrounded by members of their community. Often times a youth returning home will be confronted with the same anti-social behaviors or attitudes that are tolerant of crime or delinquency that they espoused prior to commitment. Unfortunately, at this stage in the youth's commitment many of the therapeutic advances made while in residential placement are in

jeopardy of being reduced. On the discharge CJRA, 53% of youth who ultimately went on to recidivate scored High risk on the Attitudes and Behaviors domain compared to 38% of those who did not recidivate ($\chi^2 = 26.048$, $df = 1$, $p < 0.001$).

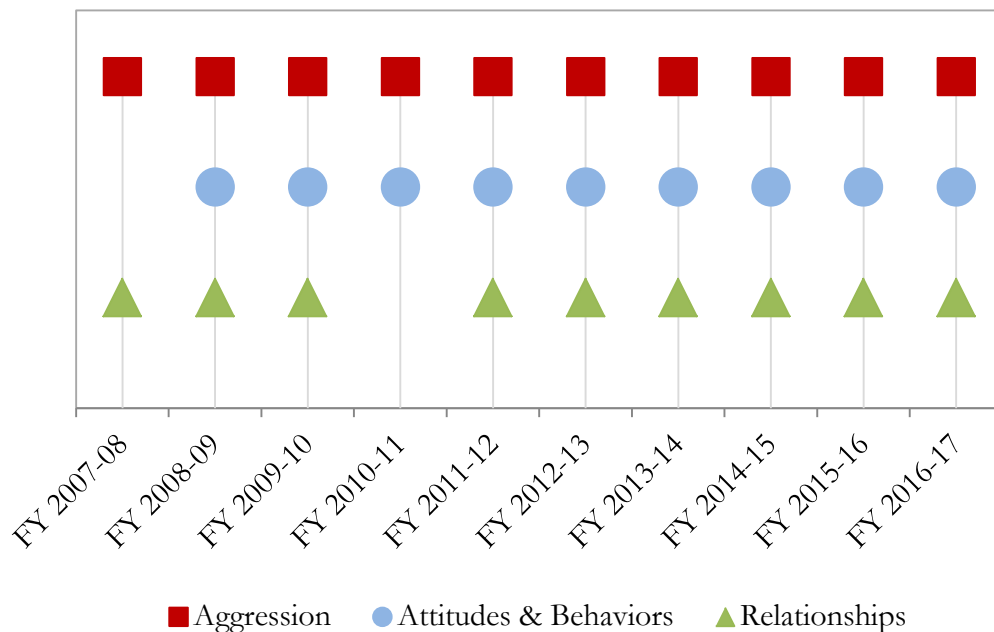
Aggression

On the discharge CJRA, 39% of youth who ultimately went on to recidivate scored High risk on the Aggression domain compared to 29% of those who did not ultimately recidivate ($\chi^2 = 14.744$, $df = 1$, $p < 0.001$). It has long been established that incarcerated offenders tend to score higher on assessments of aggression than the general population. Youth who are committed to DYS have typically experienced an array of aggression and complex trauma in their lives, whether it was perpetrated or witnessed in their neighborhoods, schools, or even at home. Past experiences with violence and complex trauma can lead to aggressive reactions to stress or other confrontations [21].

Consistently Predictive CJRA Domains: Aggression, Attitudes & Behavior, and Relationships

Discharged youth scoring High risk on the CJRA Aggression domain have proven **for ten consecutive years** to be at statistically higher risk of recidivating, while discharged youth scoring High risk on the Attitudes & Behavior and the Relationships domains have proven for nine of ten consecutive years to be at statistically higher risk of recidivating (see Figure 13).

Figure 13: Consistently Predictive CJRA Domains



OFFENSE TYPES

VRA AND OTHER CRIMES

This section of the analysis focuses exclusively on recidivists, and examines both the commitment offense (the offense that resulted in a DYS sentence) as well as the associated recidivist act(s). All recidivists in the one-, two-, and three-year cohorts were included in the analysis, for a total of 671 unique recidivists^{ix}. Collectively, the 671 unique recidivists in the three discharge cohorts were either adjudicated or convicted for 2,161 recidivist acts over the follow-up periods, or roughly 3 recidivist acts per recidivist ($\mu = 3.22$). Most recidivists ($n = 364$) committed two or fewer recidivist acts, while a handful of outliers ($n = 16$) committed 10 or more recidivist acts. Further investigation into those recidivists with a large number of recidivist acts revealed a pattern in which these youth committed more severe offenses (e.g.: a string of robberies and sexual assaults, a violent murder, etc.) which resulted in a large number of filings for a single case number (44 in the largest outlier). Fortunately, these 16 outliers represent roughly 2% of recidivists, and only 1% of all youth who discharged from DYS between FY 2014-15 and FY 2016-17.

Type of Commitment Offenses vs. Recidivist Offenses

The following analysis examines the type of offense for which a youth was committed to DYS and compares it to the recidivist offense(s) that occurred during the follow-up periods. The types of offenses examined delineate between those that fall under the VRA, and other felonies and misdemeanors.

Of the 671 recidivists in the three discharge cohorts followed for one, two, and three years post-discharge, the majority were originally sentenced to DYS on felony adjudications: 57.7% felony vs. 42.3% misdemeanor (see Figure 14). Of these same commitment offenses, 37.1% ($n = 249$) were crimes that fell under the VRA, while the remaining 62.9% ($n = 422$) were non-VRA offenses (see Figure 15). This finding is consistent with the findings described in previous reports, where property crimes (which do not fall under the VRA) were consistently found to be the most common commitment offense.

^{ix} The recidivists analyzed in this section are not the same as those in the Analysis Cohort presented in previous sections. The analysis in this section includes all youth identified as recidivists in the one-, two-, and three-year post discharge cohorts, and follows them for *one, two and three years post-discharge*, respectively. The Analysis Cohort follows all youth who discharged from the Division over three Fiscal Years for *one year post-discharge*, and does not follow youth out to three years post discharge. Thus, data presented in this section will not match previously presented data as it was drawn from a different data set and covered a different period of time.

Figure 14: Commitment Offense for Recidivists: Felonies and Misdemeanors ($N = 671$)

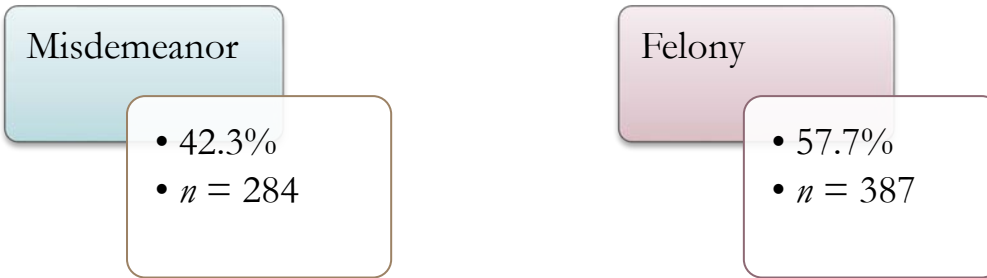
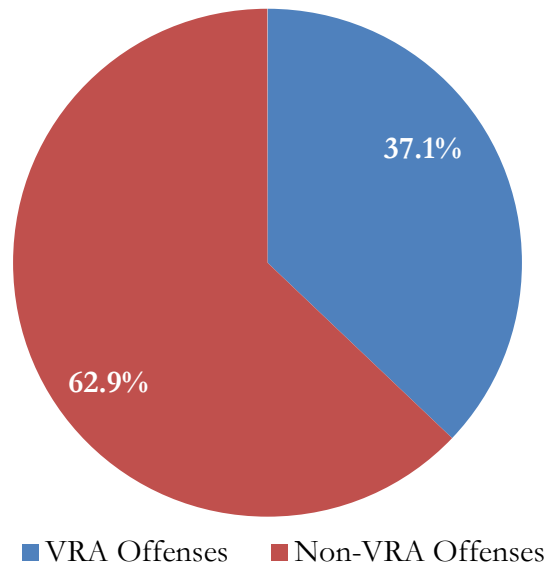


Figure 15: Commitment Offense for Recidivists: VRA and Other Offenses ($N = 671$)



A further examination of non-VRA commitment offenses ($n = 422$) revealed that the majority (64.2%, $n = 271$) were felony offenses (see Figure 16). Looking specifically at those 249 commitment offenses that fell under the VRA, the majority (53.4%) were misdemeanors compared to felonies (46.6%) (see Figure 17).

Figure 16: Commitment Offense for Recidivists Non-VRA Offenses ($N = 422$)

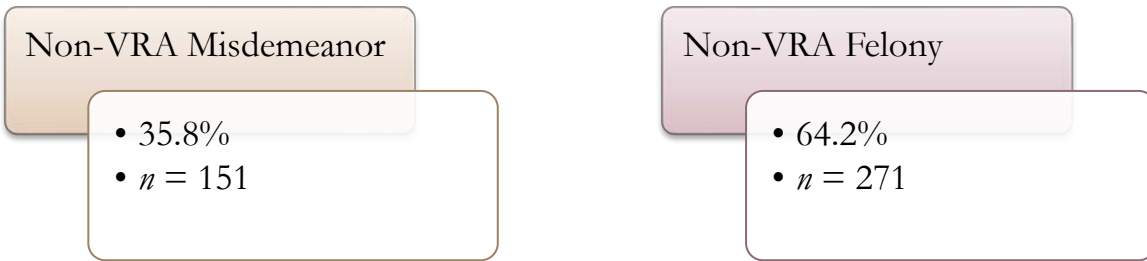
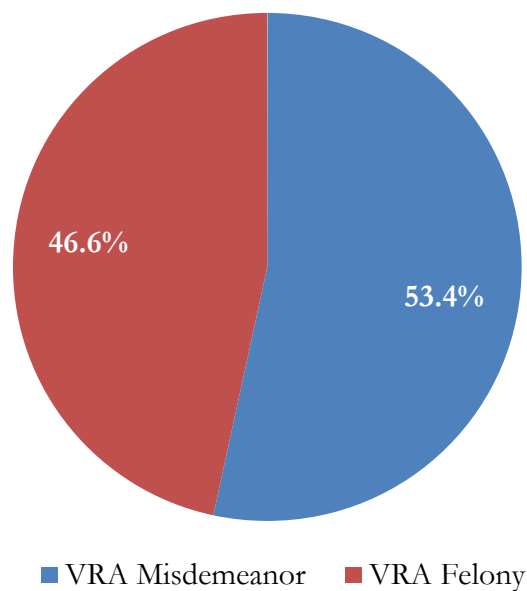


Figure 17: VRA Commitment Offense for Recidivists ($N = 249$)



While all youth examined in this report have a single commitment offense, recidivists can and do commit multiple recidivist acts. Thus, the number of recidivist acts reported in this section ($n = 2,161$) will naturally be greater than the number of commitment offenses in each category examined. Contrary to what was observed with commitment offenses, the majority of recidivist acts committed over each of the follow-up time periods were misdemeanors (55.9%) compared to felonies (44.1%) (see Figure 18). Generally speaking, misdemeanors are considered to be less serious offenses than felonies. Relatively few recidivist acts were crimes that fell under the VRA (24.1%), with more than three-quarters (75.9%) of all recidivist acts being non-VRA offenses (see Figure 19). Looking at those 1,640 recidivist acts that did not fall under the VRA, the majority were misdemeanors (57.7%) compared to felonies (42.3%) (see Figure 20).

Figure 18: Recidivist Acts ($N = 2,161$)

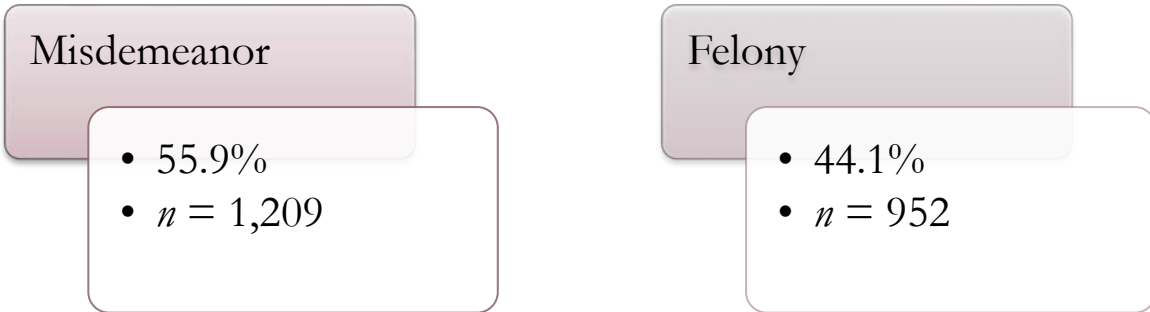


Figure 19: Recidivist Acts: VRA and Other Offenses ($N = 2,161$)

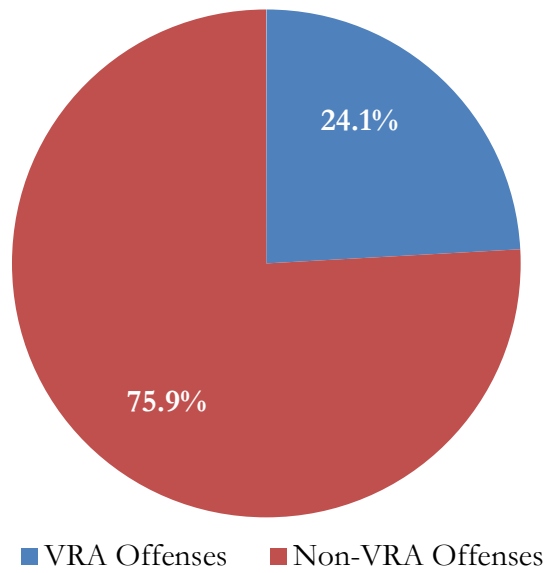
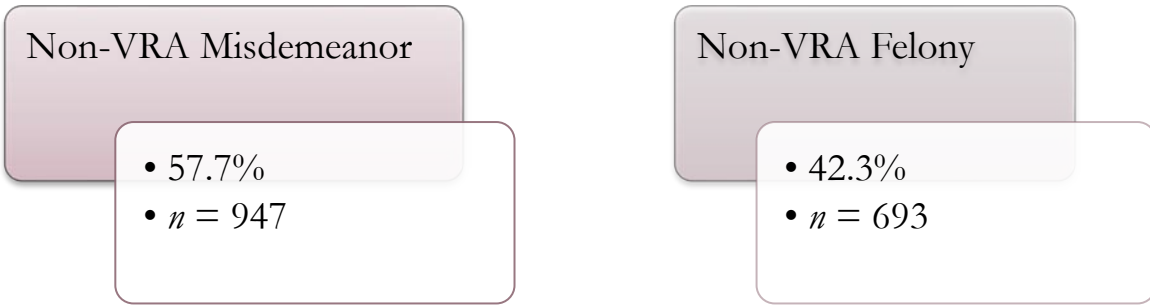
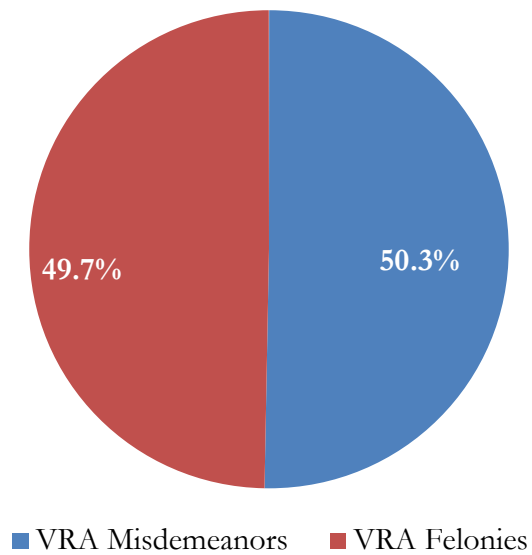


Figure 20: Non-VRA Recidivist Acts ($N = 1,640$)



Looking exclusively at those 521 recidivist acts that fell under the VRA, a nearly equal distribution were misdemeanors (50.3%) and felonies (49.7%) (see Figure 21).

Figure 21: VRA Recidivist Acts ($N = 521$)



TYPES OF OFFENSES

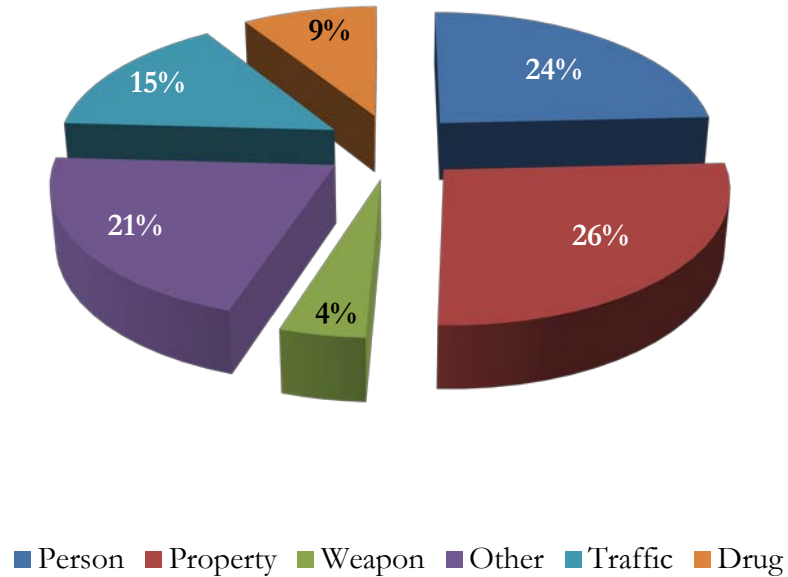
COMMITMENT OFFENSES VS. RECIDIVIST ACTS

An analysis was conducted regarding the different types of recidivist acts perpetrated among the Analysis Cohort. Specifically, every recidivist act committed by each of the 671 recidivists in the three discharge cohorts was examined by type and compared to the commitment offense. As stated earlier, the total number of recidivist acts included in the analysis will naturally be greater than the number of commitment offenses.

There are several different categories into which offenses can be classified: person, property, weapon, traffic, drug, and other. Person offenses involve harm to another person and are considered the most severe type of offense. Property offenses involve the theft or destruction of property, while weapon offenses are violations of statutes or regulations that control deadly weapons. Drug offenses can include the manufacture, sale, or possession of specific quantities of illicit substances or prescription medications without a valid prescription. Traffic offenses, not to be confused with traffic violations (e.g.: parking tickets), include things like driving under restraint, driving while ability impaired, and vehicular eluding. Other offenses among the Analysis Cohort included: accessory to crime, aiding escape, attempted escape, minor in possession of alcohol, underage consumption of alcohol, illegal use/possession of blue/red lights, contraband offenses, contributing to the delinquency of a minor, criminal possession of a financial device, criminal possession of identification, criminal impersonation charges, aggravated cruelty to animals, disorderly conduct, failure to leave premises, false imprisonment, false reporting, unauthorized financial transaction, unlawful use of fireworks, fishing without a license, forged instrument, forgery charges, harboring a minor, ID theft, indecent exposure offenses, interference with school officials, limited gaming offenses, obstruction offenses, open container violations, providing false information to a pawnbroker, perjury, practicing pharmacology without a license, violations of protection orders, attempting to influence a public servant offenses, resisting arrest, rioting in a detention facility, other riot offenses, failure to keep records by a secondhand property dealer, tampering offenses, violation of bail bond conditions, and witness tampering/intimidation/retaliation offenses.

Of the 2,161 recidivist acts committed by youth in the three discharge cohorts, the majority 26% ($n = 570$) were property crimes (see Figure 22), while 24% ($n = 524$) were crimes committed against persons. Of the remaining recidivist acts, 4% ($n = 93$) were weapons offenses, 21% ($n = 452$) were Other offenses, 15% ($n = 327$) were Traffic offenses, and 9% ($n = 195$) were Drug offenses.

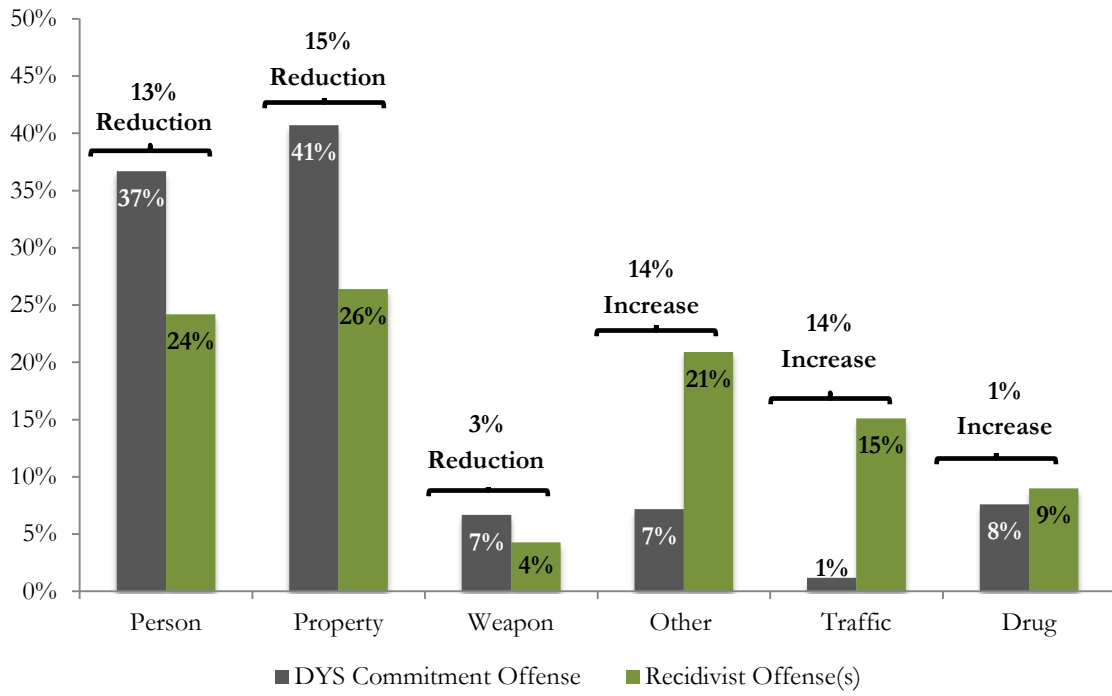
Figure 22: Types of Recidivist Offenses (N = 2,161)



As shown in Figure 23, among recidivists, the most common types of commitment offense were property offenses (41%) and person offenses (37%). Property offenses were the most common DYS commitment offense type and the most common recidivist act (26%).

It should be noted that the percent of recidivist acts that were person offenses (24%) decreased by 13% compared to the percent of commitment offenses that were person offenses (37%). Similar reductions were noted between commitment and recidivist property and weapon offenses: 41% of commitment offenses were property offenses, but only 26% of recidivist acts were property offenses (15% reduction), while weapon offenses declined from 7% of commitment offenses to 4% of recidivist acts (3% reduction). Recidivist acts classified as other demonstrated a 14% increase compared to the commitment offense (21% and 7%, respectively). Drug offenses experienced a 1% increase comparing commitment (8%) to recidivist offenses (9%), but remained a relatively small number of the total recidivist acts ($n = 195$; see Figure 23).

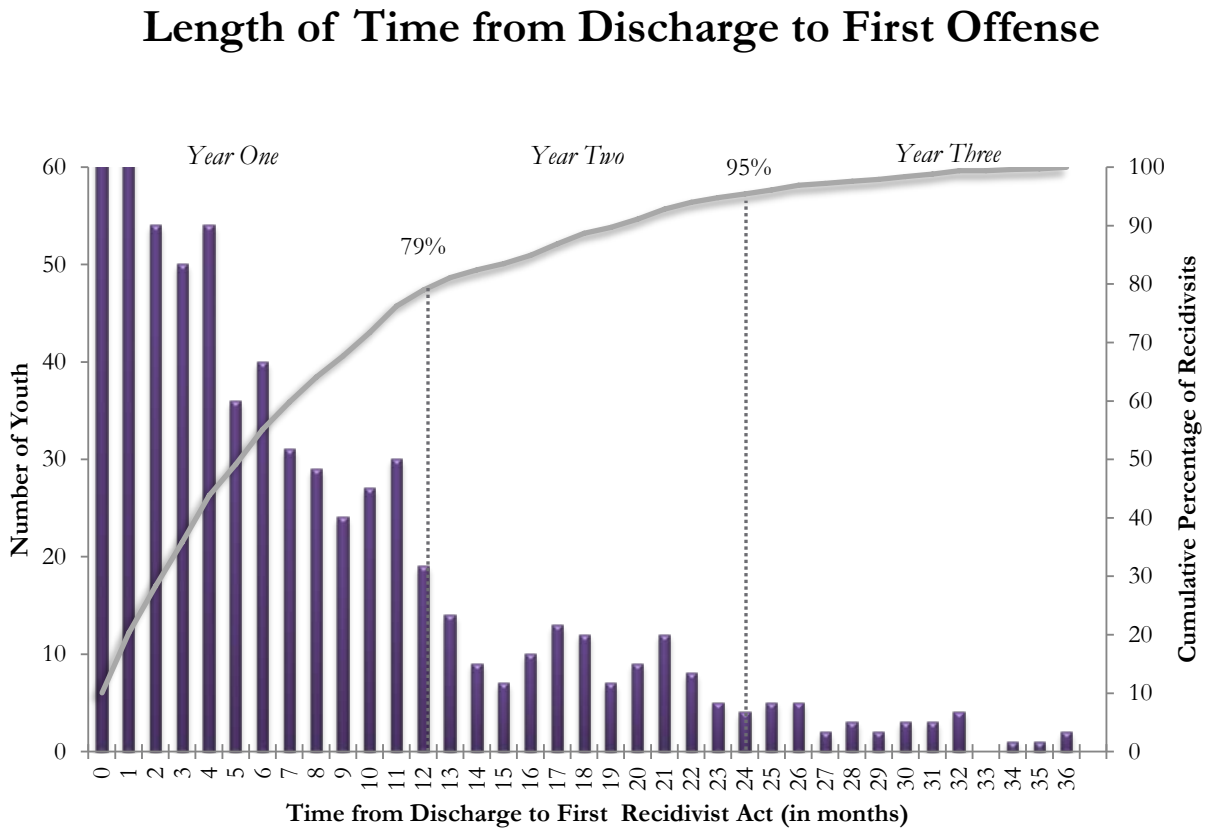
Figure 23: Types of Commitment Offenses vs. Recidivist Offenses



TIME TO FIRST RECIDIVIST OFFENSE

Eligible youth from all three discharge cohorts (FYs 2014-15, 2015-16, and 2016-17) were included in the time to first recidivist offense analysis ($N = 1,350$). For youth who committed a recidivist act within the prescribed time periods ($n = 671$), Figure 24 depicts the points in time at which the new offenses occurred. As shown in the histogram, more than three-quarters of youth who recidivated did so within the first year after discharge (79%). At two years post-discharge, nearly all first recidivist acts had occurred (95%). Only 31 recidivists committed their first recidivist act between 25 and 36 months post-discharge. This corresponds to roughly 6% of recidivists discharged over 3 Fiscal Years. Figure 24 illustrates that as time passes, fewer and fewer youth commit their first recidivist act. The literature is robust with findings supporting the desistance from criminal activity, or “aging out” of crime and delinquency. In the figure that follows, only the first recidivist offense was reported among those youth with multiple recidivist offenses.

Figure 24: Time to First Recidivist Act



CHRONICITY OF RECIDIVIST OFFENSES

Time between Recidivist Acts

New to the report this year, this section will examine the totality of recidivist acts rather than identifying a single, most serious offense. This type of analysis, known as a study of the chronicity of criminal acts, has been generally accepted within the field of criminology as a highly informative and useful tool in identifying and understanding patterns of criminality over time [1]. While the previous section described the amount of time between discharging from DYS and the *first* recidivist act, this section will examine the length of time *between* recidivist acts. Most youth in the analysis ($n = 364$; 54%) committed two or fewer recidivist acts. An analysis of the time elapsed between a youth's first and second recidivist act was performed, and included all youth who committed a second recidivist act. The mean length of time between the first and second recidivist act was 2.5 months. As is illustrated in Figure 25, the vast majority of youth who committed a second recidivist act did so almost immediately, while a handful of youth ($n = 18$; 4%) did so in year two, and fewer did so in year three ($n = 3$; 0.6%). A closer examination of youth with a second recidivist act revealed an interesting pattern where nearly all recidivists (96%) who committed two recidivist acts had done so within 12 months (see Table 6). In addition, more than half of these youth committed their second recidivist act within 30 days of discharge. Among youth who committed their second recidivist act within 30 days of discharge, nearly 44% committed their second recidivist act *on the same day as their first recidivist act*. Examples of situations where a first and second recidivist act occur on the same day could be a set of two separate offenses occurring on the same day (e.g.: trespassing in two separate locations), but is more frequently an additional charge for a related crime for which an individual is found guilty (e.g.: trespassing and possession of burglary tools).

Figure 25: Time between First and Second Recidivist Acts

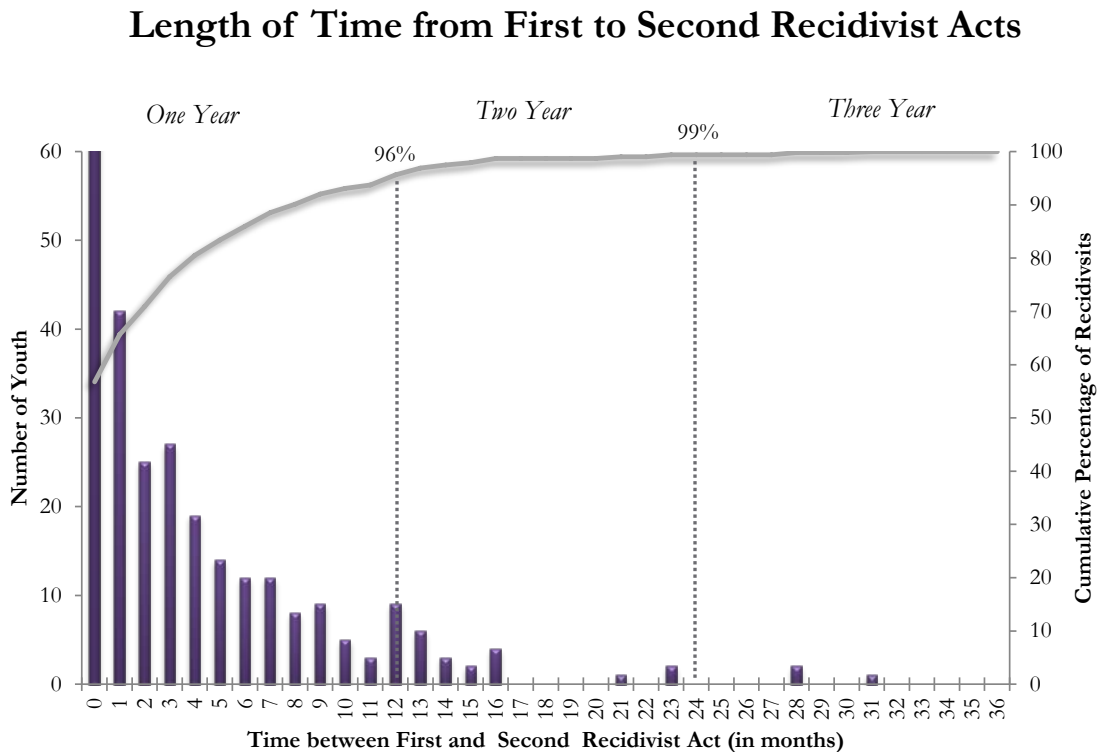


Table 6: Percent of Recidivists at Monthly Intervals between First and Second Recidivist Acts

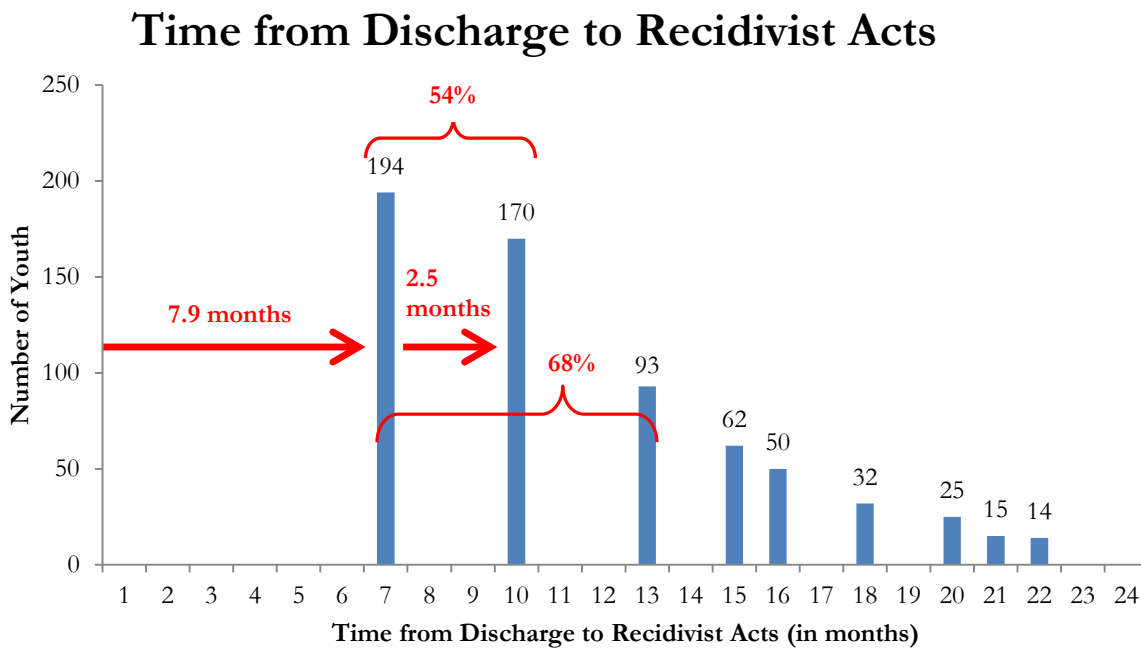
Time between First and Second Recidivist Act	
12 Months	96%
6 Months	86%
3 Months	77%
0 Months	57%

When all recidivist acts captured between FY 2014-15 and FY 2016-17 were examined as a whole, a similar pattern emerged in which most youth who recidivate do so fairly quickly after discharge, and most of these youth only commit one or two recidivist acts (54%). Specifically, among the 364 youth who committed two or fewer recidivist acts, the first recidivist act occurred, on average, at 7.94 months post-discharge, with the second recidivist act occurring roughly 2.47 months after the first (see Table 7 and Figure 26). Those youth with a larger number of recidivist acts, on average, tended to commit the

bulk of their recidivist acts within 24 months of discharge. In addition, those youth who committed more recidivist acts, on average, tended to demonstrate a consistent pattern of re-offending over time.

Caution should be used, however, when interpreting data collected on a small sub-group within a population. The recidivists in this analysis tended to fall into three sub-categories with very disparate sample sizes: there were 364 youth who committed two or fewer recidivist acts, 291 youth who committed between 3 and 9 recidivist acts, and only 16 youth who committed between 10 and 44 recidivist acts.

Figure 26: Time between Discharge and Recidivist Acts (One through Ten)^x



A general pattern that was observed among youth who recidivated during the one-, two-, and three-year post-discharge follow-up time periods was one in which youth tended to desist from new recidivist acts over time. Over two-thirds of youth ceased to recidivate by their third recidivist act at just over one year

^x Due to the very small number of youth who committed more than ten recidivist acts ($n = 16$), only the first ten recidivist acts are depicted in Figure 15.

post-discharge ($n = 457$; 68% at 13 months). A very small percentage of recidivist youth appeared to demonstrate an observable pattern of re-offending consistently throughout the follow-up time period ($n = 16$; 2%). This pattern appears to support the theory of youth “aging out” of crime, where criminal involvement peaks in adolescence, and previously delinquent youth tend to desist from consistent criminal involvement as they mature and take on the increased responsibilities that come with adulthood, such as entering the workforce, getting married, and having children [1].

Table 7: Average Time to Recidivist Acts

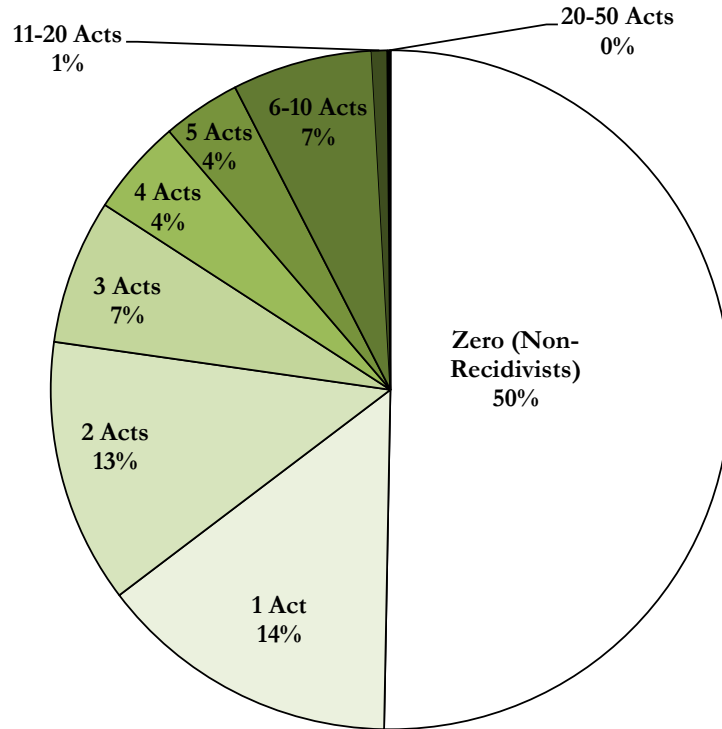
Time To Recidivist Acts			
Recidivist Act	Mean Time from Discharge to Recidivist Act	Mean Time from Previous Recidivist Act	Number of Youth
1st	7.94	N/A	194
2nd	10.38	2.47	170
3rd	13.02	3.71	93
4th	15.64	3.48	62
5th	16.56	2.25	50
6th	18.36	3.36	32
7th	20.21	2.75	25
8th	21.21	2.08	15
9th	21.81	1.15	14
10th	19.85	1.61	4
11th	20.46	0.92	3
12th	21.82	2.65	1
13th	24.22	2.64	2
14th	22.28	0.05	3
17th*	17.76	0.43	1
23rd*	10.41	0.44	1
44th*	14.28	0.3	1

**Youth with recidivist acts on the same day as previous recidivist acts are excluded from the table, as the resulting mean difference was zero.*

When examined as a whole, 50% of youth who discharged from the Division over the three Fiscal Years of interest did not recidivate ($n = 679$), with 27% of youth committing two or fewer recidivist acts (see Figure 27). In other words, although some youth did recidivate within the observed follow-up periods, most recidivists did so very quickly upon discharge, tended to commit misdemeanor property offenses rather than VRA crimes against persons, and ceased committing new crimes within two years. Desisting from continued criminal activity over time is a finding that is consistent with the Life Course Perspective, and is well documented within criminological literature [1] [24].

Figure 27: Recidivist Acts by Discharged Youth

Number of Recidivist Acts by All Cohort Youth (N = 1,350)



NATIONAL COMPARISON

The following section provides a comparison of Colorado’s one-, two-, and three-year post-discharge juvenile recidivism rates to other states with the goal of gaining a better understanding of how the State compares nationally. A 2013 study of how juvenile recidivism is measured and reported in the United States conducted by the Pew Charitable Trusts surveyed executive branch agencies responsible for juvenile state commitment facilities in each of the 50 states and the District of Columbia. It should be noted that states may have more than one executive branch agency reporting juvenile recidivism data, such as municipalities that serve youth exclusively in their communities, individual facilities or programs within a larger juvenile justice system, etc. In this way, the term “executive branch agencies” is not equivalent to individual states, nor are these terms mutually exclusive. The extensive Pew study examined current practices in the data collection, measurement, performance, and reporting of juvenile recidivism data. The results found that executive branch agencies within individual states utilize very different definitions and methods to study juvenile recidivism, and revealed a need for more policy-relevant data collection and reporting practices [23]. Specifically, approximately one in four states does not regularly collect and report juvenile recidivism data, and fewer than half use measures that provide a comprehensive picture of youth reoffending. In this context, a comprehensive measure of youth reoffending refers to comparing youth to previous cohorts, following youth through adult corrections and probation, and tracking youth beyond the juvenile parole period (e.g.: utilizing a longitudinal research design). Using these terms as defined by the Pew study, Colorado is one of few states conducting regular research with rigorous data collection, measurement, performance evaluation, and reporting of juvenile recidivism information.

Currently, individual states differ in a number of key factors in terms of defining, measuring, and reporting juvenile recidivism [23]. These differences can complicate between-states comparisons, as outlined in Table 8.

Table 8: Recidivism Data Collection and Reporting Practices in Juvenile Corrections

Defining Recidivism	
Measures of Reoffending	Number of Agencies^{1,2}
Arrest	16
Adjudication or Conviction	28 ³
Commitment (juvenile or adult)	25
Length of Follow-Up	
12 months	21 ³
24 months	15 ³
36 months	19 ³
Follow Offenders into the Adult System	
	30 ³
Measuring Performance	
Compare to the Previous Year Release Cohorts	32 ³
Compare Rates by Offender Risk	21 ³
Reporting	
At Least Annually	33 ³
Results Released to All Three Branches of Government	21 ³

¹Executive branch agencies should not be confused with individual states

²Sub-categories are not mutually exclusive

³Indicates methods currently used in Colorado

Methods of National Comparison

This process involved an extensive review of available juvenile recidivism reports which conveyed each state’s juvenile recidivism rates and research methodology. A state was considered ideal for comparison if it met the following conditions: 1) utilized a similar methodology to that of Colorado, 2) had a similar definition of a recidivist act, 3) served a similar juvenile population, 4) reported on multiple years of recidivism, and 5) maintained consistency in how recidivism measures were reported in the most recent years. Data from the most recent one-year post-discharge cohort ($n = 442$, discharged in FY 2016-17) were used in the national comparison.

Results of National Comparison

Each state identified as a possibility for comparison varied in its definition of recidivism, the time period used to capture recidivism, and in the overall availability of data on recidivism rates. It is important to acknowledge that for the purposes of this analysis, definitions of recidivism were matched as closely as possible. Each juvenile correctional system, however, may be structured differently or have population-specific considerations which make it unique.

Table 9 represents the six states that were identified as methodologically comparable to Colorado in terms of defining juvenile recidivism. The District of Columbia is not a state, but it regularly reports juvenile recidivism rates that were deemed to be comparable to those used in Colorado and was included with state-level data. Respective recidivism rates are reported by state in ascending order.

Table 9: National Comparison

States with Comparable Juvenile Recidivism Measures			
State	One-Year Recidivism Rate	Two-Year Recidivism Rate	Three-Year Recidivism Rate
Maryland	20.0%	26.9%	34.2%
Idaho ^{1,2}	29.0%	N/A	54.0%
District of Columbia ³	32.0%	N/A	N/A
Colorado	34.4%	52.1%	61.1%
Maine ⁴	36.8%	53.8%	N/A
Florida ³	46.0%	N/A	N/A
Virginia	46.7%	69.5%	77.8%

¹State tracks youth for one- and three-year follow-up time periods.

²State defines "discharge" as the start of parole; the recidivism measurement period includes parole.

³State only tracks youth for a one-year follow-up time period.

⁴State analyzes data on youth who were released from a facility *for the first time* during the time period of interest.

When comparing the one-year post-discharge recidivism rates between comparable states, Colorado's rate (34.4%) is the median of the performance range (20% - 46.7%). The three states with rates lower than Colorado are Maryland (20%), Idaho (29%), and the District of Columbia (32%).

Last year, Colorado had the third lowest one-year juvenile recidivism rate (31.5%) after Maryland (16.7%) and Idaho (30%). It is important to note that Idaho currently defines "discharge" as the start of parole, as their juvenile parole services are handled at the county level rather than by the Idaho Department of Juvenile Corrections. Thus, youth on parole are considered "discharged" from their agency and are currently included in their recidivism data collection process. While this difference in when the one-year post-discharge recidivism follow-up period begins clearly differs from Colorado's, it was determined that there were sufficient similarities and adequate rigorous design elements to warrant keeping Idaho among the pool of states with similar research methodologies.

Data from all other states (not shown in Table 9) were sought out and examined when available, but were ultimately excluded because they could not be found, did not report a recidivism rate, or due to differences in their definition or measurement of recidivism. For instance, Ohio defines a recidivist act as "a return to the Department of Youth Services (DYS)" or any juvenile "incarcerated in the adult correctional system." Using this definition might result in a misinterpretation of the true comparability of this state's recidivism rate and Colorado's.

The True Recidivism Rate is Unknown

Recidivism is defined by Colorado's youth services system as a new felony/misdemeanor conviction/adjudication for an offense committed within a specified follow-up time period. Given this definition, recidivism rates are, at best, merely an estimate. The rates reported are as close to the true rate as is currently possible; however, they are still an underestimate. Several challenges exist that reduce the accuracy of these estimates.

1) Denver County Adult Misdemeanor Cases Captured

The Denver County Court System (DCC) is the only county court system in the State whose data is not captured by the Judicial Department's data system. Thus, adult *misdemeanor* convictions processed by DCC are not included in this study. Many former DYS youth included in the multi-year follow-up periods were at or over 18 years of age, and thus fall under this "gap" in reported cases. Denver County adult *felony* convictions are captured in the data collection process because they are processed by the Denver District Court, which is a part of the Judicial Department's data system. Denver Juvenile Court processes juvenile misdemeanor and felony adjudications, therefore all juvenile adjudications from Denver are included in this study. In March of 2019, a Memorandum of Understanding (MOU) was reached with the DCC regarding the sharing of adult misdemeanor conviction data with the Division. The DCC data will be matched by DCC staff and will be provided to the Division for inclusion in future studies and it is anticipated that these data will be available for incorporation into future reports.

2) Youth Discharged to the Department of Corrections/Adult Corrections Not Included as Recidivists

For all intents and purposes, youth who are discharged from DYS directly to the adult correctional system would be considered recidivists by most people's standards. Most of these youth are transferred to the Department of Corrections (DOC) because they commit offenses while at DYS (which is captured as pre-discharge recidivism not post-discharge recidivism); however, due to the restrictions of the methodology in the current analysis that defines a recidivist act as occurring within a defined time period post-discharge, the youth who are discharged directly to DOC do not have the same opportunities to commit recidivist acts as do youth who are discharged to the community. The only way a youth who is discharged to DOC can be considered a recidivist, using the current definition, is if he/she is charged with an offense while at an adult correctional facility. This study does capture those offenses as described. This limitation will be experienced by any state defining juvenile recidivism using the same methodology as Colorado.

3) Offenses Committed in Other States Not Captured

This study only uses data from the Colorado Judicial System; therefore, if a youth commits an offense in another state, it remains undetected and is not included in the analysis. While it would be more accurate to include offenses committed in other states, the reality of obtaining highly confidential data from 49 states is simply not feasible.

4) Offenses While on Parole Status are Not Considered Recidivist Offenses

Offenses committed while a youth is on parole status are not considered to be recidivist acts because they did not occur *after the youth fully discharged from the Division's supervision*. While a youth is on parole status, he/she remains under the supervision of the Division, and the recidivism clock does not start until all DYS supervision has ended. Offenses committed on parole are considered to be pre-discharge recidivism. Pre-discharge recidivism rates are calculated internally, but are not reported in the current report.

5) Time-at-Risk (actual increases)

Time-at-risk increases when follow-up periods are extended (such as the two- and three-year follow-up periods). Increased time-at-risk results in “net widening,” during which more re-offending behavior is detected, and results in increased recidivism rates. For example, in a one-year follow-up period, a youth has 365 days at-risk, or one year’s opportunity to re-offend. Similarly, in a two-year follow-up period, that same youth has twice as much time-at-risk, thus doubling the opportunity to re-offend (730 days). It has been demonstrated that with increased time-at-risk, an increased number of youth recidivate.

6) Judicial Process Delays Erroneously Decrease Recidivism Rates

A recidivist act, as described in the methodology section of this analysis, is determined by a guilty finding leading to a new adjudication or conviction. The Judicial process involved in obtaining a guilty finding includes committing an offense, being arrested, having the offense filed in court, various court proceedings (hearings, trials, etc.) and then being found guilty by the court. This process can take a substantial amount of time, and due to several possible delays, many filings remain open when the data used to create this report is extracted from the Judicial database. This means that a youth may ultimately be guilty of a new offense but the verdict has not been determined at the time when the data is extracted for analysis. Findings (e.g., guilty, not guilty) can come days, months, or even years following a filing, particularly among more serious offenses. Youth who had open cases with missing findings during the one-year follow-up period are not considered to be recidivists---as the definition of recidivism is a new adjudication or conviction, and a finding is necessary to determine whether or not a youth recidivated. Although these youth are not captured as recidivists in year one, they will most likely be captured with extended two- and three-year follow-up periods. When data is more complete, more adjudications and convictions are captured, and this in turn increases recidivism rates.

7) Misclassification Bias

Many of the analyses in this report are based on the Analysis Cohort, or three years of the most recent DYS discharge cohorts combined into one, larger cohort. Naturally, the Division wants to know information on the most recently discharged youth; however, many of the youth who are identified as non-recidivists after one year ultimately do recidivate in the subsequent two or three years. This means that for many of the analyses they are labeled as “non-recidivists” when in fact they will be “recidivists.”

RECOMMENDATIONS

Unified Statewide Data Systems

The single largest barrier to in-depth, criminological research surrounding juvenile recidivism in Colorado is the lack of data systems that can “talk” to one another. The current process has been as streamlined and automated as the data allow, but still relies on months of “hand matching” Judicial records to youth in the discharge cohort. Infrastructure that allows for unique identifiers or links between DYS, Judicial, DOC, etc. would greatly assist in the process, allowing for the bulk of time spent producing the report to be focused on the actual analysis rather than on the exhaustive data cleaning and matching process.

Length of Service Matrix

Reducing length of service (LOS) for youth committed to the Division of Youth Services supports the Department's vision to reduce recidivism and reduce the incarceration of youth. Although the current analysis did not find a significant relationship between total residential LOS and recidivism (see Appendix B), other research has found that longer stays in juvenile commitment facilities do not lead to reduced recidivism rates, and in some cases, may even lead to an increased involvement in crime following a youth's incarceration [24]. In addition, reducing lengths of service in DYS commitment facilities aligns with best practices for supporting positive outcomes among this population [25].

Reducing LOS can be aided by the development of an LOS matrix, which contains criteria purposefully selected to guide and inform length of services decisions and release factors. The recommendation to develop an LOS matrix aligns with mandates contained within statute, with an expected completion date on or before January 2021.

Parole Rating at Discharge

The results of many years of analyses, including the current analysis, have pointed to the importance of this rating in predicting future recidivism. Currently, the Division's client managers assign this rating to youth upon discharge. If a similar rating system could be implemented earlier in the parole process (perhaps mid-way through parole, or even 60-90 days into parole), youth flagged as “adjusting” unsatisfactorily to the parole period could potentially have certain services bolstered or new services put in place to improve the re-entry process. This recommendation aligns with language found in Section 5, 19-2-212, C.R.S. (previously Senate Bill 19-108), which mandates the Division "develop a system of graduated responses and rewards" for juvenile parolees by January of 2021. These additional services or interventions may impact future discharge ratings and ultimately, the likelihood of future offending. In

addition, developing a more nuanced measure that delineates the specific areas on which a youth receives an “Unsatisfactory” rating and which resources, programs, treatments, etc. were made available would create insight into potential areas of continued concern for youth discharging from parole (substance abuse, associating with criminally involved peers, etc.).

Discharge Assessments

When youth are committed to DYS, they undergo a battery of assessments. These assessments help to formulate the youth’s treatment plan while they are committed and serve their parole sentences. It is recommended that the Division also re-assess youth on more of these evaluations so that treatment progress can be measured, particularly in light of the chronicity analysis which indicated that most youth who commit two or fewer recidivist acts do so within the first year post-discharge. A greater battery of assessments administered immediately prior to discharge might flesh-out or otherwise identify factors that can influence future recidivism. Currently, the CJRA is the only re-assessment given at discharge.

Community-Based Prevention Services for at-Risk Youth

Many committed youth come to DYS with a host of risk factors for future criminality. Some identified risk factors for delinquency, violence, and illicit substance use include: family disorganization, community disorganization, poverty, lack of attachment to school or pro-social peers, a family history of system involvement, etc. In addition, most youth return to their families and communities upon discharging from DYS, where these risk factors frequently continue unaddressed. Although the Division incorporates family and pro-social community members in each youth’s treatment, parole transition, and discharge plans, more could be achieved at a Statewide or community level using a community-based prevention model to bolster both front- and back-end services for at-risk youth and thus reduce the number of juvenile offenders and recidivists.

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APPENDIX B – Non-Significant Findings

VARIABLES TESTED BUT FOUND NOT TO DIFFER SIGNIFICANTLY BETWEEN RECIDIVISTS AND NON-RECIDIVISTS (ANALYSIS COHORT)^{xi}

	Non recidivists		Recidivists		<i>p</i> -value ¹	Total
	<i>n</i>	%	<i>n</i>	%		
Age at Discharge	19.1 years		19		0.68	19.1
Age at Commitment	16.3		16.3		0.35	16.3
Parole More or Less than 6 Months						
No Parole	5	1%	2	0.4%	0.84	0.6%
Less than 6 Months	262	34%	166	34%		33.8%
More than 6 Months	514	66%	316	65%		65.6%
Length of Service Total Residential Placements	20.0 months		20.4 months		0.50	20.2 months
Mean Length of Parole	6.45 months		6.75 months		0.20	6.6 months
Minority/Non-Minority Ethnicity						
White	341	63.9%	193	36.1%	0.36	534
Non-White	501	61.4%	315	38.6%		816
DYC Committing Offense Charge						
Felony	487	57.8%	295	58.1%	0.74	57.9%
Misdemeanor	354	42.0%	213	41.9%		42.0%
Petty	1	0.1%	0	0.1%		0.1%
DYC Committing Offense Charge						
Felony	487	57.8%	295	58.1%	0.93	57.9%
Non-Felony	355	42.2%	213	41.9%		42.1%
Region						
Central	355	42.2%	188	37.0%	0.32	40.2%
Northeast	239	28.4%	158	31.1%		29.4%
Southern	157	18.6%	104	20.5%		19.3%
Western	91	10.8%	58	11.4%		11.0%
Mental Health						
No formal mental health intervention required at commitment	430	51.3%	257	51.0%	0.91	51.2%
Formal mental health intervention required at commitment	408	48.7%	247	49.0%		48.8%

¹*p* < 0.05 (indicates a statistically significant difference between recidivists and non-recidivists).

^{xi} Additional variables were examined for analysis, but were not tested as the distribution of data between groups was too unequal to continue. These variables included placement at discharge and sex offender status.

CRIMES THAT FALL UNDER COLORADO'S VICTIM RIGHTS ACT

- Murder in the first degree, in violation of section 18-3-102;
- Murder in the second degree, in violation of section 18-3-103;
- Manslaughter, in violation of section 18-3-104;
- Criminally negligent homicide, in violation of section 18-3-105;
- Vehicular homicide, in violation of section 18-3-106;
- Assault in the first degree, in violation of section 18-3-202;
- Assault in the second degree, in violation of section 18-3-203;
- Assault in the third degree, in violation of section 18-3-204;
- Vehicular assault, in violation of section 18-3-205;
- Menacing, in violation of section 18-3-206;
- First degree kidnapping, in violation of section 18-3-301;
- Second degree kidnapping, in violation of section 18-3-302;
- (I) Sexual assault, in violation of section 18-3-402;
- (II) Sexual assault in the first degree, in violation of section 18-3-402, as it existed prior to July 1, 2000;
- Sexual assault in the second degree, in violation of section 18-3-403, as it existed prior to July 1, 2000;
- (I) Unlawful sexual contact, in violation of section 18-3-404; or
- (II) Sexual assault in the third degree, in violation of section 18-3-404, as it existed prior to July 1, 2000;
- Sexual assault on a child, in violation of section 18-3-405;
- Sexual assault on a child by one in a position of trust, in violation of section 18-3-405.3;
- Sexual assault on a client by a psychotherapist, in violation of section 18-3-405.5;
- Invasion of privacy for sexual gratification, in violation of section 18-3-405.6;
- Robbery, in violation of section 18-4-301;
- Aggravated robbery, in violation of section 18-4-302;
- Aggravated robbery of controlled substances, in violation of section 18-4-303;
- Incest, in violation of section 18-6-301;
- Aggravated incest, in violation of section 18-6-302;
- Child abuse, in violation of section 18-6-401;
- Sexual exploitation of children, in violation of section 18-6-403;
- Crimes against at-risk adults or at-risk juveniles, in violation of section 18-6.5-103;

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- Any crime identified by law enforcement prior to the filing of charges as domestic violence, as defined in section 18-6-800.3;
- An act identified by a district attorney in a formal criminal charge as domestic violence, as defined in section 18-6-800.3;
- Any crime, the underlying factual basis of which has been found by the court on the record to include an act of domestic violence, as defined in section 18-6-800.3, pursuant to section 18-6-801;
- Stalking, in violation of section 18-3-602 or 18-9-111;
- A bias-motivated crime, in violation of section 18-9-121;
- Careless driving, in violation of section 42-4-1402, that results in the death of another person;
- Failure to stop at the scene of an accident, in violation of section 42-4-1601, where the accident results in the death or serious bodily injury of another person;
- Any criminal attempt, as described in section 18-2-101, any conspiracy, as described in section 18-2-201, any criminal solicitation, as described in section 18-2-301, and any accessory to a crime, as described in section 18-8-105, involving any of the crimes specified in 24-4.1-302(1);
- Intimidating a witness or a victim, in violation of section 18-8-704;
- Retaliation against a witness or victim, in violation of section 18-8-706, Retaliation against a judge, in violation of section 18-8-615, Retaliation against a juror, in violation of section 18-8-706.5;
- Retaliation against a prosecutor, in violation of section 18-8-616;
- Aggravated intimidation of a witness or a victim, in violation of section 18-8-705;
- Tampering with a witness or victim, in violation of section 18-8-707;
- Indecent exposure, in violation of section 18-7-302; or
- Violation of a protection order issued under section 18-1-1001, against a person charged with committing sexual assault, in violation of section 18-3-402, sexual assault on a child, in violation of section 18-3-405, sexual assault on a child by one in a position of trust, in violation of section 18-3-405.3, sexual assault on a client by a psychotherapist, in violation of section 18-3-405.5, or stalking in violation of section 18-3-602;
- Human trafficking, in violation of section 18-3-503 or 18-3-504;
- First degree burglary, in violation of section 18-4-202;
- Child prostitution, in violation of section 18-7-40; Soliciting for child prostitution, in violation of section 18-7-402; Procurement of a child for sexual exploitation, in violation of section 18-6-404; Pimping of a child, in violation of section 18-7-405; Inducement of child prostitution, in violation of section 18-7-405.5; or Patronizing a prostituted child, in violation of section 18-7-406.
- Posting a private image for harassment in violation of section 18-7-107 or posting a private image for pecuniary gain in violation of section 18-7-108;

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Colorado Department of Human Services

Division of Youth Services

<https://www.colorado.gov/pacific/cdhs/publications-reports>