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Assessing Risk for Re-Offense:
Validating the Washington State Juvenile Court Assessment

BACKGROUND

The 1997 Washington State Legislature embarked on an experiment to encourage the use of "research-based" programs that reduce juvenile offender recidivism with the enactment of the Community Juvenile Accountability Act (CJAA).[1] New funding for these programs was appropriated, contingent upon significant changes in several court operating features. One of these changes was the use of a statewide risk assessment to assign youth to programs based on their level of risk and risk profile.

This report first describes the purpose, development, and application of the assessment for the CJAA in the juvenile courts. An examination of the validity of the assessment follows.

In 1997, the Washington Association of Juvenile Court Administrators worked with the Washington State Institute for Public Policy (Institute) to develop a new assessment, the Washington State Juvenile Court Assessment (WSJCA). In addition to meeting the legislative requirement, the juvenile court administrators envisioned an assessment that could accomplish the following:

- Determine a youth's level of risk for re-offending as a way to target resources at higher-risk youth;
- Identify the risk and protective factors linked to criminal behavior so that the rehabilitative effort can be tailored to address the youth's assessment profile;
- Develop a case management approach focused on reducing risk factors and increasing protective factors; and
- Allow managers to determine if targeted factors change as a result of the court's intervention.

[1] RCW 13.40.500–540. In this context, research-based means a program has sufficient scientific evidence to conclude that it can reduce recidivism if properly implemented.

SUMMARY

The 1997 Washington State Legislature enacted the Community Juvenile Accountability Act (CJAA) to test the use of "research-based" programs to reduce juvenile offender recidivism. The act required the use of a risk assessment to assign youth to these programs.

The Washington Association of Juvenile Court Administrators worked with the Washington State Institute for Public Policy (Institute) to develop the Washington State Juvenile Court Assessment (WSJCA). An instrument was drafted following a review of the juvenile delinquency research literature and then modified, based on feedback from an international team of experts. The assessment was revised again following reviews by Washington State juvenile court professionals, including a pilot test with 150 youth.

The resulting 132 item assessment was implemented in 1999 as a two-stage process. The first stage is a pre-screen assessment completed for all youth placed on probation. The pre-screen is a shortened version of the full assessment that quickly indicates whether a youth is of low-, moderate-, or high-risk to re-offend. The second stage, a full assessment, is required only for youth assessed as moderate or high risk on the pre-screen. The full assessment identifies a youth's risk and protective factor profile to guide rehabilitative efforts.

This report examines the validity of the pre-screen and full assessment. The findings for the pre-screen are these:

- The pre-screen classifies youth into three levels of risk, each with distinctly different recidivism rates. The felony recidivism rate for high-risk youth is nearly three times the rate for low-risk youth. The accuracy of the pre-screen is good and typical of assessments in the literature.
- The pre-screen classification may be improved by re-weighting some existing items and adding items. The juvenile courts will be reviewing possible changes to the pre-screen for the next version of the assessment.

This report documents the validity of the full assessment by showing how strongly each item and domain risk and protective factor score is related to recidivism. This documentation serves as a reference for understanding the relationship between recidivism and any particular item on the full assessment.

Washington juvenile courts can have confidence that their assessment produces a valid risk classification and that the risk and protective factors in the assessment have an empirically demonstrated association with recidivism. As a result, it is appropriate for the courts to use the assessment to assign youth to programs designed to address a youth's risk profile and to expect that effective programs will reduce risk and increase protective factor scores.

The development of the instrument was based on a review of the following types of research:

- Recidivism prediction literature and instruments;
- Theoretical models for juvenile delinquency;
- Risk and protective factor research;
- Resiliency research; and
- Research on effective juvenile delinquency programs.

Numerous prediction instruments were reviewed during the effort, including an examination of tools such as Lerner's Strategies for Juvenile Supervision,[2] Baird's Wisconsin Risk Scale,[3] and Hoge and Andrews' Youth Level of Service and Case Management Inventory.[4]

The research literature on treatment programs also influenced the development of the WSJCA. Presumably, treatment approaches are successful when they target and change factors that significantly influence continued criminal behavior.

During the summer of 1997, a group of international experts reviewed a draft version of the assessment and provided written comments. This group of individuals included the following: Brian Beemus (Oregon Department of Corrections); Robert DeComo, Donna Hamparian, and Patricia Hardyman (National Center on Crime and Delinquency); Jennifer Grotpeter (University of Colorado); Scott Henggeler (Medical University of South Carolina); Mark Lipsey (Vanderbilt University); Patrick Tolan (University of Illinois at Chicago); Robert Hoge (Carleton University, Ontario); Vern Quinsey (Queen's University, Ontario); and David Farrington (Cambridge University, England).

In addition, more than 40 juvenile court professionals from Washington State worked with the Institute to develop the assessment. In particular, probation counselors helped refine the terminology and examples.

After a series of focus group sessions with juvenile court professionals and a two-day training session in the spring of 1998, a draft instrument was piloted in a dozen Washington State juvenile courts that involved 150 youth. The assessment was implemented statewide during 1999.

Assessment Structure and Organization

Washington's legislation required that the juvenile courts use an assessment to match a youth's risk and protective factor profile to an effective program designed to address these factors. The court implemented a two-step assessment process.

Pre-Screen Assessment. The WSJCA pre-screen is a shortened version of the full assessment that quickly indicates whether a youth is of low, moderate, or high risk to re-offend. The pre-screen is administered to all youth on probation, usually during intake when routine criminal and social history data are typically collected by court staff. The 27 pre-screen items collected during intake are then carried forward for use in the full assessment. Appendix A[5] contains the pre-screen assessment, which is a modified version of Baird's 1984 Wisconsin Risk Scale.[6] The pre-screen produces criminal and social history scores. Based on data from the Washington State Early Intervention Program,[7] these two scores are combined to determine low-, moderate-, and high-risk levels. The method for combining the two scores is empirically determined.

Full Assessment. To reduce workload impacts, the courts complete the full assessment for only those youth rated as posing a moderate or high risk on the pre-screen.[8] A structured motivational interview is conducted with the youth and youth's family. The juvenile probation counselor uses his or her

[2] See the SJS Systems, Inc. website, <www.sjssystemsinc.com>.

[3] S.C. Baird, G.M. Storrs, and H. Connelly, *Classification of Juveniles in Corrections: A Model Systems Approach* (Washington, D.C.: Arthur D. Little, Inc., 1984).

[4] R.D. Hoge and D.A. Andrews, *The Youth Level of Service/Case Management, Inventory and Manual* (Ottawa, Ontario: Department of Psychology, Carleton University, 1994).

[5] R. Barnoski, *Assessing Risk for Re-Offense: Validating the Washington State Juvenile court Assessment, Appendices* (Olympia: Washington State Institute for Public Policy, 2004).

[6] Baird, et al., *Classification of Juveniles in Corrections.*

[7] S. Matson and R. Barnoski, *Assessing Risk: Washington State Juvenile Court Early Intervention Program* (Olympia: Washington State Institute for Public Policy, 1997); R. Barnoski, *Evaluation of Washington State's 1996 Juvenile Court Program for High-risk, First-time Offenders: Final Report* (Olympia: Washington State Institute for Public Policy, 2003).

[8] Low-risk youth by definition have few problems, so not completing a full assessment presumes the absence of significant risk factors and the presence of some protective factors. In addition, there is no point in devoting resources to low-risk youth because "you cannot fix something that is not broken." As a result of implementing the assessment, many Washington courts now assign low-risk youth to minimum supervision caseloads. This group generally includes youth who are not anti-social, but rather made an error in conduct and have a very low probability of re-offending.

professional judgment and training to interpret the interview information and complete the full assessment. This analysis requires a thorough understanding of the assessment concepts and the ability to elicit and interpret information. This interview is also the first step in the rehabilitative process in which the probation counselor lets the youth and family know the counselor is interested in their strengths as well as their weaknesses. Based on the initial assessment, the youth and family work with the juvenile probation counselor to set rehabilitation goals and place the youth into an intervention designed for the youth's risk profile.

The WSJCA includes the following ten major domains related to juvenile delinquency and continued criminal activity based on the research literature.[9] Appendix B[10] contains the full assessment.

1. Criminal History
2. School
3. Use of Free Time
4. Employment
5. Relationships
6. Family
7. Alcohol and Drugs
8. Mental Health
9. Attitudes/Behaviors
10. Skills

The WSJCA includes the two types of items mentioned in the research literature: risk and protective factors. *Risk factors* are circumstances or events in the youth's life that increase the likelihood that the youth will start or continue criminal activities. *Protective factors* are circumstances or events in the youth's life that reduce the likelihood of the youth committing a crime; those positive things that help the youth overcome adversity.

In addition, assessment items can be either static or dynamic. *Static factors* are circumstances in a youth's life that are historic and cannot be changed, such as a history of physical abuse. *Dynamic factors* are circumstances or conditions in a youth's life that can potentially be changed, such as the youth's friends or school performance. Dynamic factors are used to guide the rehabilitative effort—determining what dynamic factors are influencing the youth's anti-social behavior, and then using an intervention that directly works to change those factors to reduce the likelihood for re-offending. Four types of domain scores can be produced based on each item within the domain: static risk, static protective, dynamic risk, and dynamic protective factors. The full assessment scoring is based on clinical judgment. The scoring is designed to be sensitive to changes in the risk and protective factors. For this reason, some responses to an item are scored as risk and other responses as protective. The item concerning the youth's belief in the value of getting an education is an example. A response of believing in getting an education scores one protective factor point, a response of not believing in getting an education scores one risk factor point, and somewhat believing in getting an education scores zero risk and protective factor points. Scoring the items this way results in not just a decrease in a risk score if the youth shows improvement, it also shows as an increase in the protective score. The intention is to provide feedback to both the probation counselor and the youth when progress is made.[11]

Quality Assurance. A training manual and curriculum, developed by a consultant,[12] ensures that staff completing the assessments understand the concepts intended to be measured. An experienced probation manager[13] is assigned on a full-time basis to be the statewide expert who oversees the training and quality assurance effort. Probation staff from courts across the state volunteer to receive the training required to become assessment trainers.[14] To become certified trainers, staff are videotaped and critiqued while conducting an assessment. Each court designates at least one person to become a quality assurance specialist for its court; this specialist is also videotaped and critiqued.

Periodic reviews of the assessment system are conducted to ensure assessment practices adhere to the definitions and principles. As of August 2003, more than 700 court staff have received assessment training. Approximately 10,000 youth have been assessed annually since 1999. The assessment data are sent to the Institute for use in the validation and study of the WSJCA.

[9] Although community risk and protective factors are correlated with juvenile delinquency, Washington's assessment does not include this domain. The juvenile court administrators chose not to include this domain, believing it was not fair to increase a youth's risk score based on his or her neighborhood.

[10] Barnoski, *Assessing Risk for Re-Offense, Appendices.*

[11] The Washington State Juvenile Court Assessment Manual includes the scoring scheme for each domain.

[12] Marilyn VanDieten, Ph.D., a private consultant with Orbis Partners.

[13] Diana Wavra, Grant County Juvenile Court.

[14] Steven Markussen (Snohomish County), Patty Bronson (Kitsap County), Robyn Berndt (Yakima County), Brian Thomas (Benton County), Diana Barden (King County), Scott Steven (Spokane County).

APPLICATION IN JUVENILE COURTS

The WSJCA is now an integral part of Washington State juvenile court operations. All juvenile courts have implemented the assessment, and a statewide quality assurance process has been established by the courts. Probation counselors routinely receive training in the mechanics of the assessment. This training includes reviewing video-taped interviews and the resulting assessment to ensure the probation counselor has mastered the assessment skills. The following describes how the juvenile courts are using the WSJCA.

- *The youth's level of risk for re-offending is used to target resources at higher-risk youth.*

  The courts have refocused their resources on moderate and high risk youth by assigning low risk youth to minimum supervision caseloads. These caseloads have a large number of youth report to a single probation officer where supervision is primarily by telephone. As a result of these savings in resources, more effort is directed toward the higher-risk youth.

- *A case management approach is used that focuses on progress in reducing risk factors and increasing protective factors.*

  The CJAA specifies the use of a statewide risk assessment to assign youth to research-based programs based on their level of risk and risk profile. Four programs with sufficient scientific validity[15] are implemented under the CJAA: Aggression Replacement Training (ART), Functional Family Therapy (FFT), Multi-Systemic Therapy (MST), and Coordination of Services (COS).

  To be assigned to one of these programs, a youth's assessment profile must match the risk factors that are addressed by the program. The program developers helped identify the relevant risk profile criteria described in Exhibit 1.

  For example, to be eligible to receive FFT, a youth must be at least moderate risk and have high family risk factors (at least 6 out of 24 points on Family Dysfunction Scale).

Exhibit 1
Mapping Assessment Profile to Appropriate Program

PROGRAM	RISK LEVEL CRITERIA	RISK PROFILE CRITERIA
COS	Low Risk	Not applicable
ART	Moderate to High Risk	Aggression Score of at least 1 point
FFT	Moderate to High Risk	Family Dysfunction Scale of at least 6 points
MST	High Risk	Family Dysfunction Scale of at least 6 points

As of June 2003, approximately 8,300 youth had been assigned to these state-funded research-based programs using the assessment. More specifically, 5,426 youth had been assigned to ART, 2,287 to FFT, 311 to MST, and 368 to COS.

The juvenile courts also are implementing a Case Management Assessment Process developed under a contract with Dr. Marilyn VanDieten. This process involves developing a case plan to increase protective factors and decrease risk factors identified by the WSJCA. The plan includes re-assessing youth to monitor progress.

- *Managers are allowed to determine if targeted factors changed as a result of the court's intervention.*

  The full assessment is also intended to measure changes in risk and protective factors as interim outcomes for court interventions. The full-assessment scoring scheme is clinically based, being designed to sensitively measure change through the use of dynamic factors.[16] The same item can have a risk or protective factor score depending on the response to the item. An example is the item concerning the youth's belief in the value of getting an education. A response of believing in the value of an education scores one protective factor point, a response of not having this belief scores one risk factor point, and somewhat believing in getting an education scores zero risk and zero protective factor points. Scoring the items this way results in not just a decrease in risk score if the youth shows improvement, it also shows as an increase in the protective score. This scoring is designed to make the assessment sensitive to changes, particularly when a risk factor changes to a protective factor.

[15] R. Barnoski, *The Community Juvenile Accountability Act: Research-Proven Interventions for the Juvenile Courts* (Olympia: Washington State Institute for Public Policy, 1999).

[16] R. Barnoski and M. VanDieten, *Washington Association of Juvenile Court Administrators Resource Manual and Scoring Guide* (Olympia: Washington State Institute for Public Policy, 1998).

The courts have successfully integrated the assessment into their operations based on face validity and the preliminary examination of the validity of the pre-screen risk classification levels.[17] This report examines in depth the validity of the pre-screen and full assessment.

RESEARCH DESIGN FOR VALIDITY

The WSJCA is intended to comprehensively measure risk and protective factors that are related to subsequent re-offending. The criterion for measuring the predictive and context validity of the assessment is recidivism. This study measures three types of recidivism: re-offending with either a misdemeanor or felony, re-offending with a felony, and re-offending with a violent felony. However, the primary criterion for the assessment's validity is felony recidivism.

Three measures are used to test the strength of the association between the WSJCA and recidivism.

The first measure is the *correlation coefficient*; this score can range from -1.0 to +1.0. The coefficient is 0 when there is no association and +1.0 or -1.0 when there is a perfect association.[18] Although the correlation coefficient is a very common measure of association, it has a flaw when used with dichotomous variables such as recidivism (dichotomous meaning yes or no). The size of the correlation coefficient changes with the recidivism base rate, even when the strength of the association remains the same. For example, violent felony recidivism has a lower base rate than felony recidivism, and therefore the correlations between risk levels and violent felony recidivism will be lower than for felony recidivism. Correlation coefficients are presented so that comparisons can be made with other assessment studies.

Second, to overcome the weakness of correlation coefficients for dichotomous data, we measure the strength of the association between the risk level and recidivism by calculating what is called the *area under the receiver operator characteristic* (AUC) which ranges from .50 to 1.00. This statistic does not change in size when the recidivism base rate changes. This statistic is .50 when there is no association and 1.00 when there is perfect association. An AUC of .70 or above indicates a strong association, while measures between .60 and .70 indicate a moderate association.[19]

A third measure is the *odds ratio* obtained from multivariate analyses.[20] The odds ratio indicates how much each WSJCA variable contributes to predicting recidivism, over and above what the other WSJCA variables contribute. The odds ratio indicates how the odds of recidivating change with a one-point increase in the independent variable. Odds ratios above 1.0 indicate an increase in recidivism likelihood with an increase in the variable's score, while ratios below 1.0 indicate a decrease in recidivism likelihood for an increase in score.

The choice of measures varies, depending on the question being examined:

- ✓ When comparing associations within one type of recidivism, correlation coefficients can be used because the recidivism base rate remains the same.
- ✓ When comparing the strength of association across the three types of recidivism, the AUC is reported to account for the different base rates of recidivism.
- ✓ The odds ratio is shown to illustrate how much a particular variable adds to prediction, in addition to the other variables.

The strength of association between an item on the assessment and recidivism depends on the percentage of assessments for each response category and the difference in recidivism rates among the response categories. Items that have a response with a very low frequency of occurrence but a high recidivism rate may not be statistically significant. These items are important because they identify small numbers of youth who are very likely to re-offend.

[17] R. Barnoski, *Validation of the Washington State Juvenile Court Assessment: Interim Report* (Olympia: Washington State Institute for Public Policy, 1998).

[18] No association means that the recidivism rates randomly vary from one score to the next. A perfect association means 100 percent of the group with a score above a certain value recidivated, and 0 percent below that value did not recidivate.

[19] V.L. Quinsey, G.T. Harris, M.E. Rice, and C.A. Cormier, *Violent Offenders: Appraising and Managing Risk* (Washington D.C.: American Psychological Association, 1998); P.R. Jones, "Risk Prediction in Criminal Justice," in A.T. Harland, ed., *Choosing Correctional Options That Work* (Thousand Oaks, CA: Sage, 1996), 33-68.

[20] The specific multivariate technique is logistic regression, which is appropriate for modeling the relationship between a dichotomous dependent variable, such as recidivism, and a set of independent variables.

The sample for this validation study includes assessments completed between January 1, 1999, and January 1, 2000, that were within 45 days of an adjudication that resulted in a plea, finding, or admission of guilt. This sample allows a sufficient follow-up period to adequately measure recidivism.[21] If a youth had two separate adjudications during the study period that resulted in two assessments, both are included in the study. Therefore, the unit of analysis in the validity study sample is assessments, not juvenile offenders. Because pre-screens are completed for all youth, while full assessments are completed for only youth assessed as moderate or high risk on the pre-screen, this study has two samples of assessments. The validation study includes 20,339 pre-screens of 16,593 youth and 12,187 full assessments of 9,692 youth.

A Note on Full Assessment Validity. Full assessments are only required for moderate- and high-risk youth. Fortunately, some courts completed full assessments for low-risk youth, so there are some low-risk assessments in the full assessment sample. As a result of this under-representation of low-risk assessments, the strength of the associations between the full assessment data and recidivism are lowered.

A Note on Causality. This validity study demonstrates the association between risk and protective factors and recidivism. However this empirical association cannot be viewed as necessarily causal. This study does not demonstrate that a change in risk and protective factors causes a reduction in recidivism. To establish this causal relationship requires a research design that involves a control group. For example, the validity study shows that being enrolled in school is associated with reduced recidivism. Let us assume the court has chosen to focus its efforts on getting a group of expelled youth back into school. To know whether the school attendance efforts will reduce recidivism requires selecting a comparison group similar to the targeted group except that they are not subject to the court's school attendance efforts.

Comparing changes in school attendance for youth in the attendance program to youth in the comparison group indicates whether more youth are attending school due to the program. Because the two groups of youth are identical, except for the attendance program, any reduction in recidivism for the program group can be attributed to the school attendance program.

VALIDITY OF THE PRE-SCREEN ASSESSMENT

The predictive validity of the pre-screen assessment depends on how accurately the pre-screen classifies youth into groups with distinctly different recidivism rates. This section begins with the general results for the WSJCA's pre-screen risk-level classification, then describes the results for WSJCA criminal and social history scores, and finally examines the association between each WSJCA pre-screen item and recidivism.

Risk Level Classification. Exhibit 2 presents statistics describing the validity of the pre-screen risk-level classification. These statistics include the number of pre-screen assessments, the percentage distribution, and the 18-month recidivism rates of the low-, moderate-, and high-risk groups.

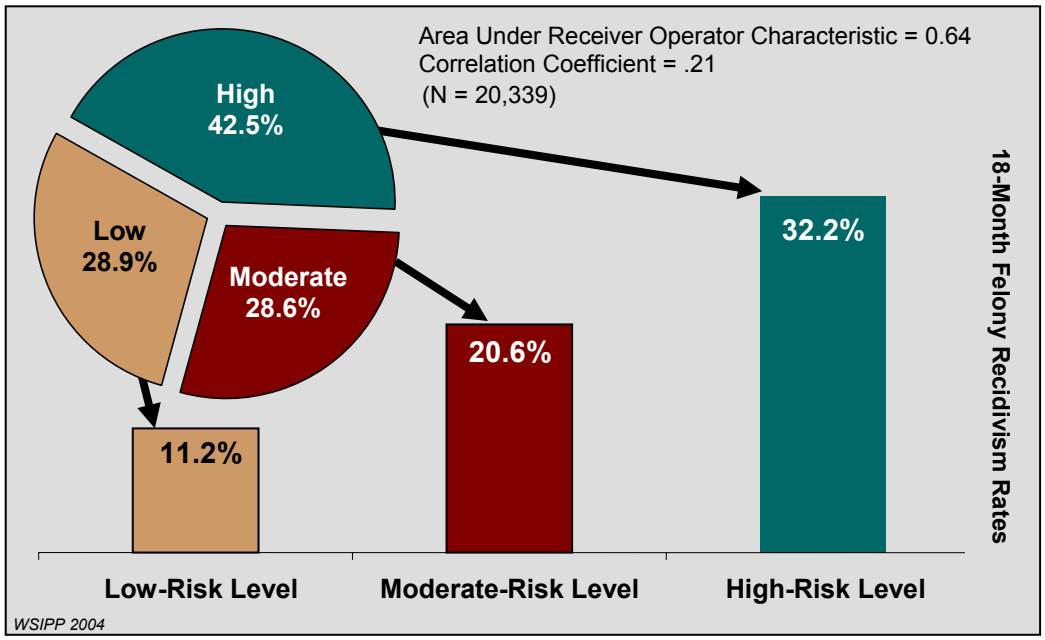
Exhibit 2
Pre-Screen Assessment Validity Summary

	RISK LEVEL			
	Low	**Moderate**	**High**	**Total**
Number of Assessments	5,880	5,817	8,642	20,339
Percent of Sample	28.9%	28.6%	42.5%	100.0%
Misdemeanor and Felony Recidivism	34.0%	47.8%	61.8%	49.7%
Felony Recidivism	11.2%	20.6%	32.2%	22.8%
Violent Felony Recidivism	2.9%	5.9%	11.0%	7.2%

In the study sample, 28.9 percent and 42.5 percent of the assessments are low-risk and high-risk respectively, while 28.6 percent are moderate-risk. The felony recidivism rate of the low-risk group is 11.2 percent compared with 32.2 percent for the high-risk group. The violent felony recidivism rate for the low-risk group is 2.9 percent while the high risk group's rate is 11 percent. That is, the high-

[21] Adequately measuring recidivism requires an 18-month re-offending follow-up period and another 12-month period to allow for any re-offenses to be adjudicated. Thus, to validate the assessment requires selecting a representative sample of assessments and then waiting 2 1/2 years to measure their recidivism. R. Barnoski, *Standards for Improving Research Effectiveness in Adult and Juvenile Justice* (Olympia: Washington State Institute for Public Policy, 1997).

Exhibit 3
Risk Level Relationship to
18-Month Felony Recidivism Rates



risk felony recidivism rates are three times the low-risk rate. Exhibit 3 graphically illustrates the felony recidivism rates and risk level percentage distribution.

Exhibit 4 displays the two measures of the strength of the association between the risk level and recidivism. The correlation coefficients between risk level and the three types of recidivism are 0.23, 0.21, and 0.13. Based on these correlations, it may appear that the risk level is more strongly related to misdemeanor and felony recidivism than to violent felony recidivism.

The second measure of the strength of the association between the risk level and recidivism is the area under the receiver operator characteristic. The area under the receiver operator characteristic is .64 for all three types of recidivism. This indicates that the risk level predicts each type of recidivism moderately well.

Exhibit 4
Measuring the Strength of Association
Between Risk Level and Recidivism

Measure of Association	Type of Recidivism		
	Misdemeanor and Felony	Felony	Violent Felony
Correlation Coefficient*	0.23	0.21	0.13
Area Under Receiver Operator Characteristic	0.64	0.64	0.64

*All correlation coefficients are statistically significant.

Conclusions for Pre-Screen Classification. The pre-screen assessment produces a valid risk-level classification that has a statistically significant relationship to all three types of recidivism. In particular, the low- and high-risk levels have recidivism rates that are distinctly different from each other.

Pre-Screen Criminal and Social History Scores. Exhibits 5 and 6 illustrate the strength of the association between felony recidivism and the pre-screen criminal and social history scores, respectively. In addition, the percentage of the study sample within a given score range is provided below the score range. For example, 19.4 percent of the study sample has a criminal history score between 7 and 8. Youth assessed with these criminal history scores have a felony recidivism rate of 22.8 percent. Both types of scores have a moderately strong association to felony recidivism: a correlation coefficient of .22 for criminal history and .20 for social history. In conclusion, both criminal and social history risk scores are moderately associated with felony recidivism.

Exhibit 5
Relationship Between Pre-Screen Criminal History Scores and Felony Recidivism

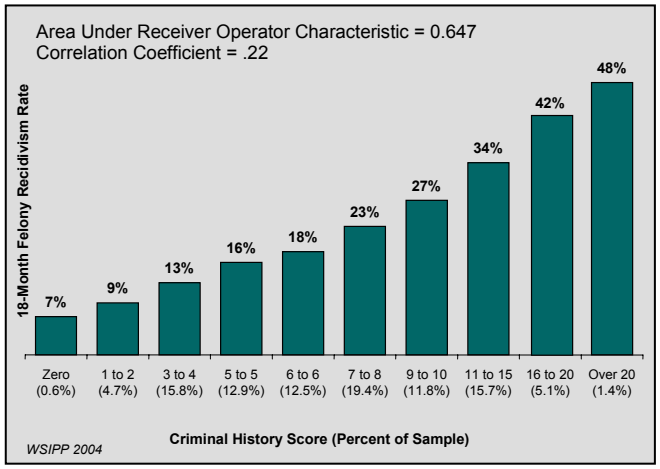
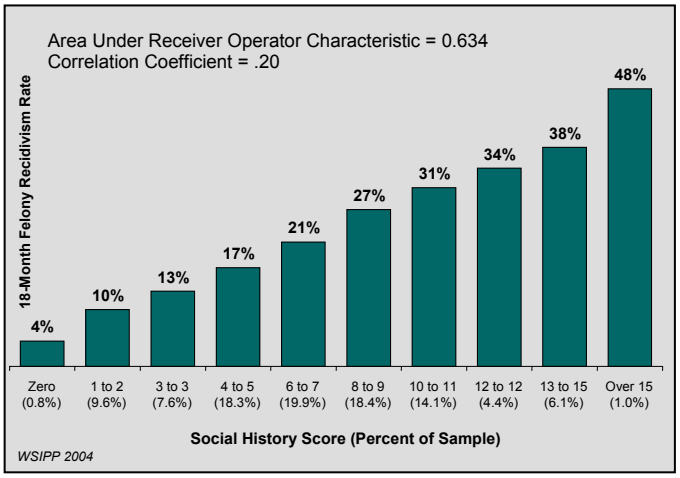


Exhibit 6
Relationship Between Pre-Screen Social History Scores and Felony Recidivism



The criminal and social history scores are also correlated with each other (correlation coefficient of .40). Because of this correlation, combining the two scores does not double their predictive power. Exhibit 7 illustrates how the average social history scores increase with an increasing criminal history score. For assessments with a criminal history score of zero, the average social history score is about four points. When the criminal history scores are above 20 points, the average social history scores are greater than 10 points.

Exhibit 7
Relationship Between Criminal History and Social History Scores

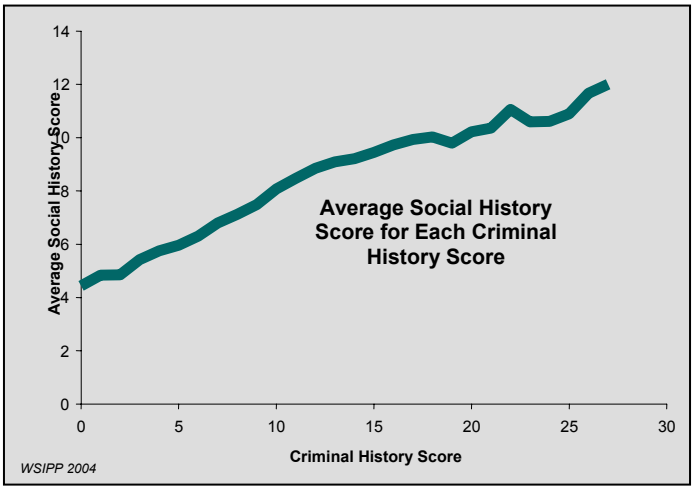
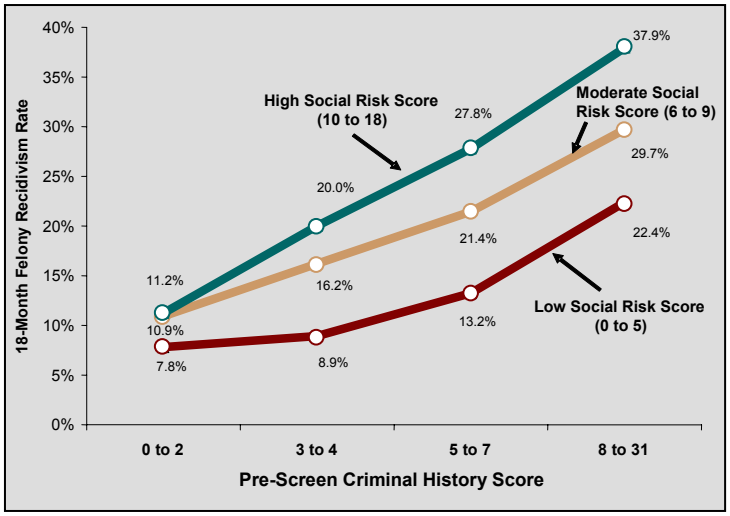


Exhibit 8 illustrates in detail how categories of criminal and social history scores work together to predict felony recidivism. For assessments with low criminal history scores (0 to 2), the felony recidivism rates for low, moderate, and high social history scores are similar, 7.8 percent, 10.9 percent, and 11.2 percent, respectively. However, for high criminal history scores (8 to 31), high social risk scores have a 37.9 percent recidivism rate compared with a 22.4 percent rate for low social risk scores. That is, the social score has a larger influence when there is a high criminal history score than when there is a low criminal history score. For this reason, the criminal and social risk scores cannot be added to accurately predict risk.

Exhibit 8
Relationship Between Pre-Screen Criminal and Social History Risk Score Categories and Felony Recidivism



Rather than adding the criminal and social history scores, risk levels are determined by combining the criminal history and social history scores from the pre-screen as shown in Exhibit 9. For example, the combination of a criminal history score of 3 to 4 with a social history score of 6 to 9 results in a moderate risk level.

Exhibit 9
Risk Level Definitions Using Criminal History and Social History Risk Scores

Criminal History Risk Score	Social History Risk Score		
	0 to 5	6 to 9	10 to 18
0 to 2	Low	Low	Moderate
3 to 4	Low	Moderate	High
5 to 7	Low	Moderate	High
8 to 31	Moderate	High	High

Conclusions for Pre-Screen Criminal and Social History Scores. Both criminal and social history risk scores on the pre-screen assessment are moderately associated with felony recidivism. The criminal and social history scores are also correlated with each other. Because of this correlation, combining the two scores does not double their predictive power. In addition, the relationship between these scores and recidivism requires that the risk levels be determined from combinations of the scores rather than their sum.

Individual Pre-Screen Items. Exhibit 10 displays the strength of each item's association with the three types of recidivism and also with the pre-screen risk level.[22] Although all of the correlations are statistically significant, correlations under .10 indicate a weaker relationship.

Exhibit 10
Correlations of Pre-Screen Items With Recidivism*

Domains	Misdemeanor and Felony Recidivism	Felony Recidivism	Violent Felony Recidivism	Pre-Screen Risk Level
Criminal History Domain				
1. Age First Referral	**0.14**	**0.13**	0.07	0.34
2. Misdemeanor Referrals	**0.19**	**0.12**	0.08	0.40
3. Felony Referrals	0.06	**0.15**	0.08	0.29
4. Weapon Referrals	0.04	0.05	0.07	0.14
5. Against-person Misdemeanors	**0.11**	0.05	0.08	0.28
6. Against-person Felony Referrals	-0.01	0.03	0.05	0.17
7. Detention Dispositions	**0.20**	**0.19**	**0.12**	0.59
8. JRA Dispositions	0.05	0.09	0.07	0.20
9. Escapes	0.01	0.04	0.02	0.09
10. Failure to Appear Warrants	**0.10**	**0.14**	0.09	0.35
Social History Domain				
1. Male Gender	**0.12**	**0.12**	0.07	0.02
2. School Problems	**0.14**	**0.13**	0.07	0.47
3. Peer Relationships	**0.18**	**0.18**	**0.11**	0.51
4. Out-of-Home Placements	0.07	0.07	0.05	0.29
5. Runaway History	**0.12**	**0.11**	0.06	0.49
6. Criminal Family Member	0.08	0.09	0.03	0.25
7. Parental Rule Enforcement	**0.19**	**0.16**	0.09	0.53
8. Alcohol/Drug Problem	**0.10**	0.07	0.04	0.41
9. Victim of Abuse	0.03	0.02	0.02	0.33
10. Victim of Neglect	0.06	0.06	0.04	0.31
11. Mental Health Problem	0.05	0.02	0.02	0.23
Criminal History Score	**0.20**	**0.22**	**0.15**	**0.62**
Social History Score	**0.22**	**0.20**	**0.12**	**0.78**
Pre-Screen Risk Level	**0.23**	**0.21**	**0.13**	**1.00**

* All correlations are statistically significant (p<.01).
Correlations of .10 and above are in bold.

All but one of the risk items has a positive correlation with recidivism. A positive correlation means that the likelihood of recidivating increases as the item's score increases.[23]

[22] Comparing the size of the correlation coefficients among the items within each type of recidivism is meaningful because the recidivism base rate is constant.
[23] The one item (against-person felony referrals) with a negative relationship with misdemeanor and felony recidivism has a very small correlation coefficient (-.01).

The detention dispositions and peer relationships items have the highest correlations with the three types of recidivism. These items also have the highest correlations with the risk-level scores. This means the items are good indicators of the youth's overall anti-social behavior.

The correlations between each item and level of risk indicate how strongly the item influences the risk classification. The detention dispositions and peer relationships items have the highest correlations with the risk-level scores. This means these items are the strongest indicators of a youth's anti-social behavior.

Appendix C[24] provides more detailed information on recidivism, describing how each item on the pre-screen relates to a comprehensive picture of the empirical predictive validity of each item in the pre-screen assessment.

Exhibit 11 includes a selection of items from Appendix C. Using felony referrals as an example, 42.8 percent of the sample had no felony referrals with an associated 18.6 percent felony recidivism rate. This rate is 4.2 percentage points less than the entire sample's felony recidivism rate of 22.8 percent. In contrast, only 8.1 percent of the sample had three or more felony referrals. For this group, the associated felony recidivism rate is 40.2 percent, which is 17.4 percentage points above the entire sample rate.

Exhibit 11
Example of Detailed Relationship Between Item on the Pre-Screen and Recidivism From Appendix C

Assessment Item	Correlation With Felony Recidivism	18-Month Recidivism Rates and Difference from Average			Percentage Within Risk Level			
		Misdemeanor or Felony (49.7)	Felony (22.8)	Violent Felony (7.2)	Low	Moderate	High	Total
3. Felony Referrals	.15							
None		49.7(+0.0)	18.6(-4.2)	6.0(-1.2)	51.4	48.0	33.7	42.8
One		45.3(-4.5)	21.3(-1.5)	6.5(-0.7)	46.4	39.8	35.0	36.1
Two		58.6(+8.9)	34.6(+11.8)	10.4(+3.2)	2.0	8.8	18.5	12.9
Three or more		62.3(+12.5)	40.2(+17.4)	13.9(+6.7)	0.3	3.4	12.8	8.1
6. Against-person Felony Referrals	.03							
None		49.9(+0.1)	22.4(-0.3)	6.7(-0.5)	95.0	87.9	81.6	87.5
One or two		48.5(-1.2)	24.7(+1.9)	10.1(+3.0)	5.0	11.8	17.7	12.1
Three or more		54.7(+4.9)	42.7(+19.9)	21.3(+14.2)	0.0	0.3	0.7	0.4
7. Detention Dispositions	.19							
None		39.4(-10.4)	14.9(-7.9)	4.4(-2.7)	74.5	44.2	14.1	31.7
One		49.8(+0.1)	22.5(-0.3)	6.8(-0.4)	24.0	41.6	30.3	31.8
Two		61.0(+11.3)	30.4(+7.6)	9.1(+1.9)	1.3	9.0	18.4	13.2
Three or more		66.6(+16.8)	36.8(+14.0)	13.1(+5.9)	0.2	5.2	37.2	23.3
8. JRA Dispositions	.09							
None		49.1(-0.7)	21.8(-1.0)	6.7(-0.5)	99.5	96.4	87.8	92.4
One		58.5(+8.8)	34.9(+12.1)	13.8(+6.7)	0.5	3.1	8.6	5.5
Two or more		62.6(+12.8)	43.1(+20.3)	15.7(+8.5)	0.0	0.6	3.7	2.2
9. Escapes	.04							
None		49.7(-0.1)	22.6(-0.2)	7.1(-0.1)	99.9	99.7	97.7	98.7
One		56.9(+7.2)	36.1(+13.3)	12.4(+5.2)	0.0	0.3	2.1	1.1
Two or more		57.1(+7.4)	42.9(+20.1)	14.3(+7.1)	0.0	0.0	0.2	0.1

[24] Barnoski, *Assessing Risk for Re-Offense, Appendices.*

Individuals with three or more felony referrals are far more likely to recidivate with a felony. However, since 42.8 percent of the sample has no felonies and only 8.1 percent have three or more, the correlation coefficient is a modest .15. These statistics illustrate how the size of the correlation coefficient between an item and recidivism depends on the percentage of assessments within each response category and the difference in recidivism rates among the response categories.

A more extreme example is the escape item. Although having two or more escapes is associated with a very high 42.9 felony recidivism rate, less than 1 percent of the sample has this number of escapes. The escape item has a low correlation coefficient of .04 as a result of the rarity of escapes.

Appendix C also includes the percentage distribution of responses for each item within the risk-level category and for the entire sample. For the felony referrals item, 0.3 percent of low-risk assessments have three or more felonies while 12.8 percent of the high-risk assessments have three or more felonies. The detention dispositions item has an even more extreme difference between low- and high-risk levels. Only 0.2 percent of the low-risk group has three or more detention dispositions compared with 37.2 percent of the high-risk group.

Conclusions for Individual Pre-screen Items. All but one of the pre-screen risk items have a positive correlation with recidivism that is statistically significant. Detention dispositions and peer relationships have the highest correlations with the three types of recidivism. These items also have the highest correlations with the risk-level scores. This means the items are good indicators of the youth's overall anti-social behavior.

Items that have a response with a very low occurrence but a high recidivism rate produce a smaller correlation coefficient. However, these items identify exceptions that are important to understand when assessing risk for re-offense, and may need to be incorporated in a future version of the pre-screen assessment.

Redundancy Among Pre-Screen Items.
Another consideration in validating the pre-screen concerns the inter-correlations among the items on the pre-screen. If several items are correlated with each other, it may be a redundant and unnecessary to include all the items in prediction scheme. Appendix D[25] contains the correlation coefficients among the pre-screen items. Exhibit 12 summarizes the inter-item correlations that exceed .30, which is a relatively high coefficient.

For example, against-person felony referrals is correlated with felony referrals; therefore, does including the against-person felonies, as well as total felonies, improve the prediction scheme? Fortunately, multivariate statistical techniques, in this case logistic regression, can help answer this question.

Exhibit 12
High Inter-Item Correlations (Above .30)

PRE-SCREEN ITEMS	CORRELATED WITH OTHER PRE-SCREEN ITEMS
Misdemeanor Referrals	Age at First Referral Against-person Misdemeanors Detention Dispositions
Felony Referrals	Against-person Felonies Detention Dispositions JRA Dispositions
Against-person Misdemeanors	Misdemeanor Referrals
Against-person Felony Referrals	Felony Referrals
JRA Dispositions	Felony Referrals
School Problems	Peer Relationships Parental Rule Enforcement
Peer Relationships	Detention Dispositions School Problems Parental Rule Enforcement
Parental Rule Enforcement	Detention Dispositions School Problems Peer Relationships Runaway History

[25] Barnoski, *Assessing Risk for Re-Offense, Appendices.*

Exhibit 13 shows the results of testing whether each item adds to the prediction of felony and violent felony recidivism using logistic regression to combine the items. It is interesting to note that felony and misdemeanor referrals are significant predictors of felony recidivism but not violent felony recidivism, while against-person felony and misdemeanor referrals are significant predictors of violent felony recidivism but not felony recidivism.

Three items do not significantly contribute to improved prediction for both felony and violent felony recidivism after all other pre-screen items are included in the logistic regression: JRA dispositions, escapes, and victim of neglect. As previously discussed, a low percentage of the sample has a JRA disposition, and JRA dispositions are correlated with other pre-screen items. Therefore, although those few assessments that have a JRA disposition are associated with high recidivism rates, the items are not statistically significant in the logistic regression analyses. The escape item is similar. The victim of neglect item is not strongly related to recidivism once all the other items are considered.

Subpopulations of juvenile offenders. One final consideration is how well the pre-screen predicts for different groups of juvenile offenders: male versus female, younger versus older, minority versus white, and sex offenders. Exhibit 14 presents the relationship between risk level and 18-month felony recidivism for these subpopulations. For example, low-risk males have a 13 percent felony recidivism rate, while low-risk females have a 6 percent rate; high-risk males have a 36 percent felony recidivism rate and high-risk females have an 18 percent rate.

Recidivism increases with increasing risk, and both high-risk males and females have recidivism rates three times greater than their low-risk counterparts. However, females have consistently lower rates than males. This difference can be corrected by giving males a higher score, in this case 10 points rather than one, in the pre-screening scoring scheme.

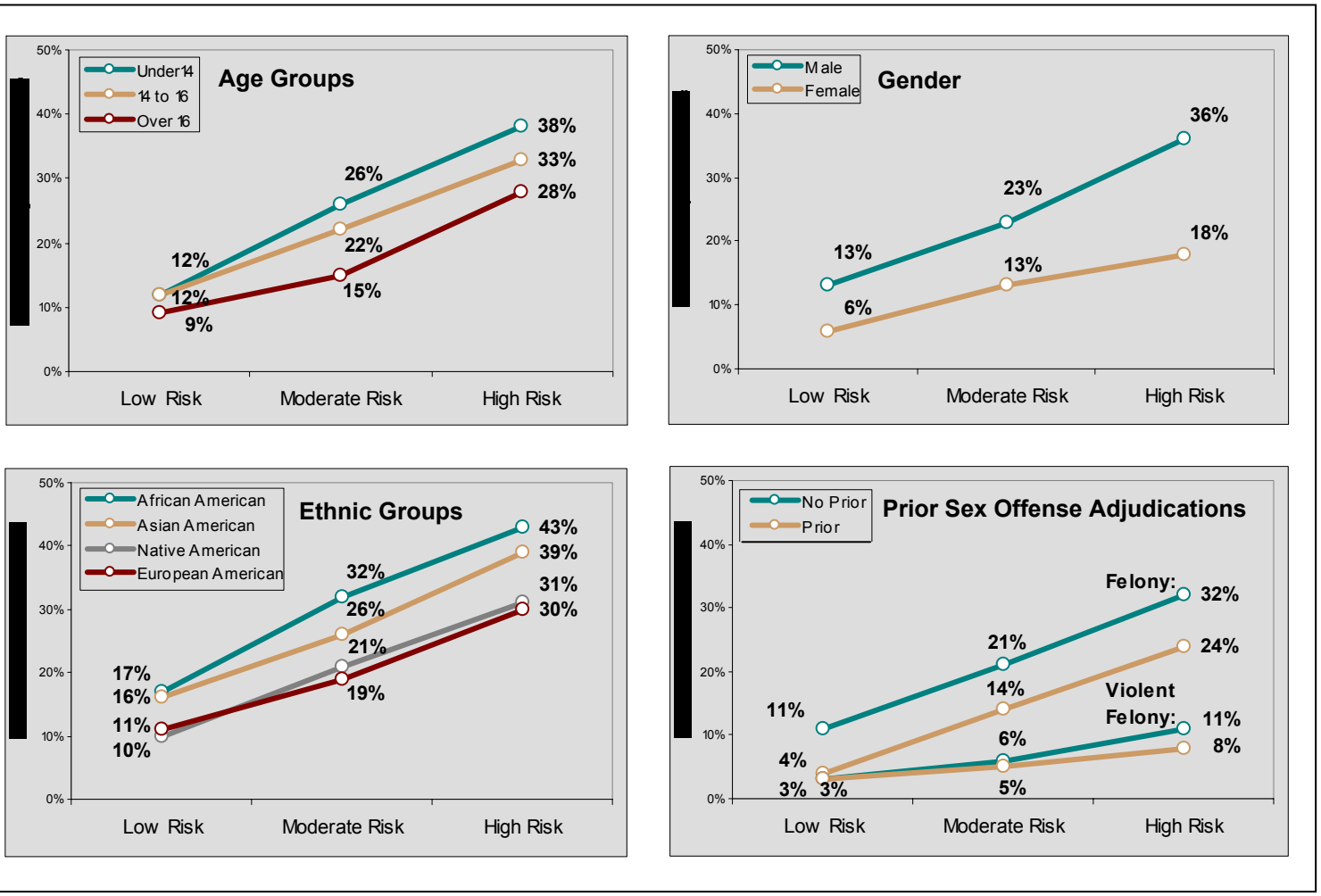
Exhibit 13
Probability of Each Pre-Screen Item Being Different From Zero When All Items Are Analyzed Together Using Logistic Regression

Pre-Screen Items	Probability Item Is Not Statistically Significant in Improving Prediction of Recidivism (Null Hypothesis)*	
	Felony Recidivism	Violent Felony Recidivism
Criminal History Items		
1. Age at First Referral	0.00	0.00
2. Misdemeanor Referrals	0.04	0.19^{ns}
3. Felony Referrals	0.00	0.25^{ns}
4. Weapon Referrals	0.90^{ns}	0.00
5. Against-person Misdemeanors	0.14^{ns}	0.00
6. Against-person Felony Referrals	0.01	0.04
7. Detention Dispositions	0.00	0.06
8. JRA Dispositions	0.90^{ns}	0.46^{ns}
9. Escapes	0.43^{ns}	0.67^{ns}
10. Failure to Appear Warrants	0.00	0.00
Social History Domain		
1. Male Gender	0.00	0.00
2. School Problems	0.00	0.01
3. Peer Relationships	0.00	0.00
4. Out-of-Home Placements	0.00	0.18^{ns}
5. Runaway History	0.00	0.03
6. Criminal Family Member	0.00	0.91^{ns}
7. Parental Rule Enforcement	0.00	0.00
8. Alcohol/Drug Problem	0.07	0.83^{ns}
9. Victim of Abuse	0.01	0.06
10. Victim of Neglect	0.75^{ns}	0.38^{ns}
11. Mental Health Problem	0.07	0.81^{ns}
Area Under Receiver Operator Characteristic	0.701	0.705

* All items are statistically significant at the .10 level except those marked ns.

Conclusions About Subpopulations of Juvenile Offenders. The pre-screen levels of risk are valid for each of the four subpopulations; recidivism rates escalate with increasing risk level for all groups. However, differences in recidivism between the groups were found at each level of risk. The pre-screen classification may be improved by re-weighting some existing items, such as gender, and adding additional items to the pre-screen, such as age at adjudication. The juvenile courts will be reviewing possible changes to the pre-screen for the next version of the assessment.

Exhibit 14
Association Between Risk Level and 18-Month Felony Recidivism



Conclusions Regarding the Validity of the Pre-Screen. Exhibit 14 indicates that some items are better predictors than others, and that a new version of the pre-screen assessment might not include all of the items in the current pre-screen.

This section of the report has demonstrated that the pre-screen assessment is a valid predictor of recidivism. The strength of the association between the pre-screen risk levels and recidivism is typical of that found in the criminal prediction literature. [25]

These analyses suggest it is possible to increase the accuracy of prediction of the pre-screen classification by re-weighting some existing items and adding items. The juvenile courts will be reviewing possible changes to the pre-screen for the next version of the assessment. A subsequent report will describe the revised pre-screen risk classification.

Finally, these results are based on the first cohort of youth assessed with the WSJCA. Since that time, the juvenile courts have improved the accuracy of administrating the WSJCA. An examination of a subsequent cohort may find stronger associations than shown in this study.

[25] Quinsey, *Violent Offenders: Appraising and Managing Risk*.

VALIDITY OF THE FULL ASSESSMENT

The goal of the WSJCA pre-screen is to measure a youth's level of risk to re-offend. The goal of the full assessment is to identify the risk and protective factors that are linked to criminal behavior, so the rehabilitative effort can be tailored to address the youth's assessment profile. The empirical validity of the full assessment depends on how well each item and domain risk and protective factor score is related to recidivism. The tabled information in Appendix E[26] presents a comprehensive picture of the empirical validity of each item in the full assessment. This appendix can serve as a reference for understanding the relationship between each item on the full assessment and recidivism. The next section of the report describes the empirical validity of the domain scoring scheme.

Domain Score Structure

The full assessment is also intended to measure changes in risk and protective factors as interim outcomes for court interventions. This requires that the assessment sensitively measures change through the use of dynamic factors. The full-assessment scoring scheme, which is clinically based, is designed to do this.[27] The same item can have a non-zero risk and protective factor score depending on the item response.

As previously explained on page 4, if an item has a positive response, it has a positive protective score and zero risk score. Similarly, if the item has a negative response, the risk score is positive and the protective score is zero.

Scoring the items this way results in not just a decrease in a risk score if the youth shows improvement, it also shows an increase in the protective score. This scoring is designed to make the assessment sensitive to changes, particularly when a risk factor changes to a protective factor. Using the assessment to measure interim outcomes assumes that decreases in risk and increases in protective factor scores (a positive change) implies the youth will be less likely to recidivate. This validity study demonstrates the association between risk and protective factors and recidivism. However, this empirical association cannot be viewed as necessarily causal. In other words, the validity study is not able to demonstrate that a change in risk and protective factors *causes* a reduction in recidivism.

To establish a causal relationship, identification and timing play a critical role. First, the behaviors targeted for change must be identified in advance. Next, any changes in risk and protective factors must be recorded when they occur, or at least before the recidivism event; then recidivism is measured. Finally, the recidivism of youth with a positive change in the targeted factors is compared with the recidivism of those without a positive change.

If youth with a positive change have the same recidivism as those without a change, then positive changes do not impact recidivism, and there is no causality. If, however, there is a reduction in recidivism for those with a positive change, then support for the causal assumption is gained. This also supports the validity of changes in risk and protective factors as an interim outcome. It is still not known whether youth changed on their own or whether changing the targeted factors caused a change in recidivism. That is, there could be some other factor that caused the youth to change in both risk and protective factors and also not recidivate. A research design involving a comparison group is needed to determine what influenced the change.

For example, the validity study shows that being enrolled in school is associated with reduced recidivism. Assume a group of youth, expelled from school, is the focus of the court's efforts. If we determine that those who started to attend school have reduced recidivism compared with those who did not, we still do not know if some factor other than the court's efforts caused a youth to both attend school and also not recidivate. To know whether the efforts to encourage youth to start attending school will reduce recidivism requires selecting a comparison group of youths similar to the targeted group except that they are not subject to the court's efforts on school attendance. Comparing the percent of "treated youth" (those who are the focus of school attendance efforts) who had a change in school attendance with the "untreated youth" (the comparison group) will tell us whether more youth are attending school due to the "treatment." Because the two groups of youth are identical, except for the treatment, any associated reduction in recidivism for the treatment group can be attributed to the courts' efforts to keep the youths in school and that changing

[26] Barnoski, *Assessing Risk for Re-Offense, Appendices.*
[27] Barnoski and VanDieten, *Washington Association of Juvenile Court Administrators Resource Manual*.

school attendance has a positive impact on recidivism.

Before examining the association between each domain score and recidivism, factor analysis is used to discover how independent the domain scores are from each other. That is, does each domain contribute a new set of information about the youth that is different from or independent of the information that is represented by the other domain scores?

Exhibit 15 presents the results of the domain score factor analysis. The 29 domain scores can be represented by eight common factors that account for 63 percent of the total domain score variance. This indicates that the domain scores are fairly independent, although they can be organized into eight common factors which account for nearly two-thirds of the variance for all 29 domain scores.

Exhibit 15 also shows the factor loadings that are greater than .30. Factor loadings are the correlations between each observed domain score and each factor. The eight factors are labeled based on the pattern of these loadings. For example, the first factor is called pre-screen risk, because the pre-screen risk score and the criminal history domain score have very high loadings on this factor.

Exhibit 15
Factor Loadings From an Eight Factor Solution
That Account for 63 Percent of the Assessment Item Variance

	FACTORS							
Domain Scores	**Pre-Screen Risk**	**School**	**Free Time**	**Employ-ment**	**Family Protective**	**Family Risk**	**Attitudes**	**Skills**
Pre-Screen Risk Score	0.72							
Criminal History Static Risk	0.72							
School Static Risk	0.42							0.35
School Dynamic Risk	0.32	0.65						
In-School Dynamic Risk		0.60						0.40
School Dynamic Protective		-0.67						
Free Time Dynamic Risk			0.89					
Free Time Dynamic Protective			-0.88					
Employment Static Risk				0.33				
Employment Static Protective				0.89				
Employment Dynamic Protective				0.92				
Relationships Dynamic Protective		-0.40	-0.34					
Relationships Dynamic Risk	0.36	0.40				0.30		
Past Family Dynamic Protective					0.75			
Past Family Static Protective					0.46			
Past Family Static Risk					-0.43	0.67		
Current Family Dynamic Protective					0.67			
Current Family Dynamic Risk						0.88		
Current Family Total Dynamic Risk						0.89		
Mental Health Dynamic Risk	0.38							0.35
Alcohol/Drugs Dynamic Risk	0.46							
Mental Health Static Risk					-0.59			
Attitudes Static Risk							-0.86	
Attitudes Static Protective							0.88	
Attitudes Dynamic Risk						0.30		0.72
Attitudes Dynamic Protective								-0.62
Aggression Attitude Dynamic Risk								0.57
Skills Dynamic Risk								0.84
Skills Dynamic Protective								-0.82

Factor loadings are the correlations between each observed domain score and each factor. The first eight principal components had eigenvalues greater than one. The scree test shows a large first principal component eigenvalue followed by slowly decreasing eigenvalues. An examination of the residual correlations after the eight factor solution indicates there may be more factors present. Varimax rotation is used to identify the eight factors.

Twenty of the 29 domain scores load high on a single factor indicating that the factors are well defined and independent of each other. Typically, the risk and protective factor domain scores load on the same factor with the opposite sign.

Conclusions for Domain Score Structure. The factor analysis of the 29 domain score confirms the relative independence of the assessment domains. The few domain scores that load on more than one factor are interesting. For example, in-school dynamic risk loads on the school factor, as expected, but also loads the skills factor. Relationships dynamic risk loads on three factors: pre-screen risk, school, and family risk. This suggests that school risk is associated with skills, and that relationship risk is associated with school and family risk.

Assessment Item Structure Within Domains

The domain scores are created by adding the scores for the items within each domain. Having a single domain score implies that the domain represents a single concept. Factor analysis is again used to examine the correlation structure of items within each domain to determine whether each domain measures a single concept. This time factor analysis is performed separately on the set of items comprising each domain.

Exhibit 16 shows the number of items and factors within each domain and the percentage of the item variance accounted for by these factors. The items in the free time and alcohol/drug domains can be represented by a single factor. This means the items within the domain are sufficiently inter-correlated that they are basically measuring the same single concept. On the other extreme is the current family domain for which 12 factors are needed to represent the 66 items in the domain. This means that the items in this domain are measuring multiple unique aspects concerning the current family.

Exhibit 16
Number of Factors for Each Domain and Percent of Item Variance Accounted For by the Common Factors

DOMAIN	NUMBER OF ITEMS	NUMBER OF FACTORS	DOMAIN ITEM VARIANCE ACCOUNTED FOR BY THOSE FACTORS
1. Criminal History	10	3	51%
2. School	31	7	65%
3. Use of Free Time	2	1	64%
4. Employment	10	2	69%
5. Relationships	19	5	64%
6a. Family History	38	10	61%
6b. Current Family	66	12	52%
7. Alcohol and Drugs	4	1	62%
8. Mental Health	14	3	55%
9. Attitudes/ Behaviors	25	8	59%
10. Skills	24	4	74%

Appendix F[28] contains the factor loadings for each domain.[29]

[28] Barnoski, *Assessing Risk for Re-Offense, Appendices.*
[29] The loadings have been subjected to a varimax rotation to improve clarity of interpretation.

To help explain the factor loadings given in Appendix F, the criminal history results are presented in Exhibit 17. The first factor is called misdemeanors because misdemeanor referrals have high factor loadings. The second factor, felonies, has felony referrals and the associated number of JRA confinement orders. Given the Washington State juvenile determinate sentencing system, it is reasonable that detention orders are associated with misdemeanors, while JRA orders are associated with felonies. Age at first referral is negatively associated with the misdemeanor factor but not strongly associated with the felony factor.

Exhibit 17
Factor Loadings for Criminal History Domain Factor Analysis That Account for 51 Percent of the Domain Item Variance

VARIABLE	FACTORS		
	Misde-meanors	Felonies	Other
1. Age First Referral	-0.55	-0.16	0.03
2. Misdemeanors Referrals	0.81	0.00	0.27
3. Felony Referrals	-0.11	0.72	0.37
4. Weapon Referrals	0.16	0.48	-0.08
5. Against-Person Misdemeanors	0.75	-0.04	-0.04
6. Against-Person Felony Referrals	-0.01	0.70	-0.15
7. Detention Dispositions	0.52	0.28	0.57
8. JRA Dispositions	0.10	0.57	.022
9. Escapes	-0.14	0.00	0.65
10. Failure to Appear Warrants	0.26	0.02	0.69

Conclusion Concerning the Assessment Item Structure Within Domains. In summary, the factor analyses of the items within each domain illustrate that most domains are multifaceted, measuring more than a single concept. Two domains, free time and alcohol/drug use, are one-dimensional.

Domain Score Association With Felony Recidivism

The relationship between each domain score and recidivism is addressed in this section. Exhibit 18 displays the correlation coefficients describing the association between the domain static/dynamic risk and protective factor scores and felony recidivism, respectively. As expected, protective factor scores have a negative association with recidivism. Criminal history static risk has the highest correlation with felony recidivism (0.18). Eight of the 23 domain scores have moderate correlations (.10 and above; -.10 and below) with felony recidivism. In addition, the total static risk, total dynamic risk, and total dynamic protective scores are also moderately correlated with felony recidivism. The family history static protective factor is not correlated with felony recidivism because there is only one weak protective factor in the domain.

Exhibit 18
Correlations Between Domain Scores and Felony Recidivism*

DOMAIN	FELONY RECIDIVISM*			
	Static Risk	Static Protective	Dynamic Risk	Dynamic Protective
1. Criminal History	**0.18**			
2. School	**0.13**		**0.10**	-0.05
3. Free Time			0.04	-0.05
4. Employment		-0.07		-0.08
5. Relationships			**0.13**	-0.07
6a. Family History	**0.10**	0.00		
6b. Current Family			**0.10**	-0.04
7. Alcohol/Drug			0.07	
8. Mental Health	0.02		0.04	
9. Attitudes	0.06	-0.03	**0.12**	**-0.11**
10. Skills			**0.10**	-0.09
Total	**0.16**	-0.05	**0.16**	**-0.12**

* Correlations of .10 and above and -.10 and below are in bold.

The full assessment is also used by the courts to determine a youth's eligibility for a state-funded research-based program. Currently, there are three program eligibility scales with cut-off values that determine eligibility. More eligibility scales will be developed as additional research-based programs are implemented. For example, mental health and drug problem scales can be used to determine the need for either mental health or drug treatment.

Exhibit 19 shows the percentage of moderate/high risk assessments that meet the eligibility cut-offs for the three programs currently implemented in Washington State. The criterion for Aggression Replacement Training may need to be reviewed since 82 percent of the moderate/high risk assessments meet this criterion. The exhibit also illustrates that assessments meeting the eligibility criterion have higher recidivism rates than those not meeting the criterion. This follows the risk principle of assigning more resources to higher-risk youth.

Exhibit 19
Percentage of Moderate/High Risk Assessments Meeting the Eligibility Cut-Offs for the Three Research-Based Programs Currently Implemented

	RECIDIVISM			
Eligible	**Moderate/ High Risk**	**Misdemeanor and Felony**	**Felony**	**Violent Felony**
Aggression Replacement Training				
No	18.0%	40%	15%	4%
Yes	82.0%	58%	28%	9%
Functional Family Therapy				
No	49.4%	50%	22%	7%
Yes	50.6%	60%	30%	10%
Multi-Systemic Therapy				
No	63.5%	49%	22%	7%
Yes	36.5%	64%	33%	11%

Conclusions Concerning Domain Score Association With Felony Recidivism. In summary, the assessment's risk and protective factor domain scores are significantly associated with felony recidivism. In addition, the risk factor domain scores are more closely associated with recidivism than the protective factor domain scores.

SUMMARY OF FINDINGS FOR THE PRE-SCREEN

Pre-Screen Classification. The pre-screen assessment produces a valid risk-level classification that has a statistically significant relationship to all three types of recidivism. In particular, the low- and high-risk levels have recidivism rates that are distinctly different from each other. The high-risk group has a recidivism rate three times the rate for the low-risk group.

Pre-Screen Criminal and Social History Scores. Both criminal and social history risk scores on the pre-screen assessment are moderately associated with felony recidivism. The criminal and social history scores are also correlated with each other. Because of this correlation, combining the two scores does not double their predictive power. In addition, the relationship between these scores and recidivism requires that the risk levels be determined from combinations of the scores rather than their sum.

Individual Pre-screen Items. All but one of the pre-screen risk items has a positive correlation with recidivism that is statistically significant. Detention dispositions and peer relationships have the highest correlations with the three types of recidivism. These items also have the highest correlations with risk level. This means the items are good indicators of the youth's overall anti-social behavior.

Subpopulations of Juvenile Offenders. The pre-screen levels of risk are valid for four subpopulations of offenders: different age groups, females, minorities, and sex offenders; recidivism rates escalate with increasing risk level for all groups. However, differences in recidivism between the groups were found at each level of risk. The pre-screen classification may be improved by re-weighting some existing items, such as gender, and adding additional items to the pre-screen, such as age at adjudication. The juvenile courts will be reviewing possible changes to the pre-screen for the next version of the assessment.

Validity of the Pre-Screen. This report has demonstrated that the pre-screen assessment is a valid predictor of recidivism. The strength of the association between the pre-screen risk levels and recidivism is typical of that found in the criminal prediction literature.

The juvenile courts will be reviewing possible changes to the pre-screen for the next version of the assessment.

Finally, these findings are based on the first cohort of youth assessed with the WSJCA. Since that time, the juvenile courts have improved the accuracy of administering the WSJCA. As a result, an examination of a subsequent cohort may find stronger associations with recidivism than shown with this first cohort.

SUMMARY OF FINDINGS FOR THE FULL ASSESSMENT

Domain Score Structure. The factor analysis of the 29 domain scores confirms the relative independence of the assessment domains. Few domain scores load on more than one factor.

Assessment Item Structure Within Domains. The factor analyses of the items within each domain illustrate that most domains are multifaceted, measuring more than a single concept. Two domains, free time and alcohol/drug use, are one-dimensional.

Domain Score Association With Felony Recidivism. The assessment's risk and protective factor domain scores are significantly associated with felony recidivism. In addition, the risk factor domain scores are more closely associated with recidivism than the protective factor domain scores.

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