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Are Two Voices Better Than One? Predicting Permanency for Minority Youth Using Multi-Informant Mental Health and Strength Data

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Abstract

Among youth in child welfare ages 6 to 17, 40% meet criteria for one or more DSM diagnoses. For minority youth in child welfare, poor mental health is compounded by limited access to care and racial disparity bias, leading to poorer outcomes. This paper uses data collected and analyzed by an automated behavioral health assessment system for a multi-year study that focused on ways to improve case planning in child welfare. Youth, their caseworkers and, in some cases, parents completed assessments that measured and monitored the youths' needs and strengths. More than 60% of youth participating in the study were African American; permanency rates after six months of case planning were found to be only one-third. Predictive factors related to better behavioral health and permanency outcomes are identified and discussed, as well as the implications for improving case planning by incorporating the views of multiple informants, including the youth.

Keywords

CASSP; Level of Care; Permanency; Outcomes; Decision Support; Strength-Based Assessment; Prediction; Case Planning; Racial Disparity

Introduction

Youth in the child welfare system represent a high-risk population for mental health disorders; forty percent of those ages 6 to 17 meet criteria for one or more DSM diagnoses, and youth in foster care use mental health services up to 15 times more often than other youth.¹ For minority youth, although the rate of prevalence of mental health disorders is comparable to white youth, access to behavioral health services is often very limited.^{2, 3} Studies show that African-American, Hispanic, and Asian-American youth are more likely to experience delays in accessing needed behavioral health treatment.^{4, 5} In addition, African-American youth are more likely to be investigated for maltreatment, to be placed in foster care and are less likely to achieve permanency.⁶ Other research with minority youth shows that a high prevalence of mental health problems is often associated with poor placement stability, longer stays in residential and other high intensity settings and a decreased probability of reunification.⁷⁻⁹

The risks associated with race increase as the youth ages through the child welfare system. Service utilization studies show that minority youth who are older have a much greater need for mental health services than those who are younger.¹⁰⁻¹² Many end up in high cost and service intensive residential settings.^{11, 13}

There is also evidence that racial disparity influences teachers' evaluations of a youth's behavior, which may impact whether the minority youth receives treatment or is funneled into the juvenile justice system.¹⁴⁻¹⁷ Minority youth are over-represented in all stages of the juvenile justice system; as high as one-half of youth involved in confinement cases are minorities.¹⁵⁻¹⁸

The Child Welfare League of America and the American Academy of Child and Adolescent Psychiatry recommend that all youth in foster care should receive a full assessment of their behavioral health within 60 days of entrance into the system. While there is movement towards this goal, significant barriers are slowing progress. In addition to racial barriers to accessing appropriate treatment, many child welfare caseworkers are often not adequately trained to recognize the impact of trauma on behavior in youth or the development of mental health disorders, and access to highly trained mental health professionals can be limited, especially in rural areas. As a result, many states are unable to address the mental health needs of youth in child welfare, even when racial bias is accounted for according to Child and Family Services.¹⁹

The direct cost of not providing adequate access to behavioral care services to abused youth, in terms of psychiatric hospitalization, chronic health problems, mental health services and involvement with the law, was \$33.1 billion in 2007, while the indirect costs of special education, poor mental health, health care, juvenile justice and adult criminality has been estimated at \$103.8 billion.^{20, 21}

Beyond the negative impact on permanency, the long-term effects of unaddressed mental health problems and trauma can extend through a lifetime. Childhood adversity and exposure to abuse frequently precede adult psychiatric disorders, including borderline personality, dissociative disorder/identity, suicidality and self-harm behaviors (e.g., cutting,

substance abuse, sociopathy).^{22, 23} Other serious consequences include negative/confused self-concept^{24, 25} and a difficulty setting boundaries and dealing with conflict.²⁶ All of these are associated with future victimization and abuse,²⁵ establishing a pattern that is often repeated in the next generation.

One possible mechanism to improve case planning and mitigate racial disparity is to use a system for the standardized assessment of behavioral health issues¹⁸ that is designed for outcomes management and progress assessment. A key requirement is the collection of behavioral health data throughout the treatment process – ideally to support decisions about service needs and ways to utilize strengths.²⁷ In the project described in this paper, site participants were given a system that provides the basics of sound outcomes management: (1) continuous assessment; (2) real-time reporting of youth's needs and strengths; and (3) reporting and analytics that can support decisions about the youth's needs.

In this project, the majority of the youth were given the opportunity to convey their behavioral health needs and strengths directly via self-report assessment, and through their caseworkers with the Child and Adolescent Needs and Strengths Assessment (CANS).²⁸ The CANS suite of clinical tools is used in child welfare and mental health agencies in more than 26 states. Its ratings of child strengths and problems have been found useful in decision-making for residential settings,¹³ for quality improvement in crisis assessment services^{29, 11} and for its standardized and color-blind ratings of youth.

The youth and parental components of the outcome assessment system used in this project were originally selected based on a literature review, clinical interviews and analysis using the Fort Bragg data set to determine items that predicted service need and cost of services.³⁰ They consist of a number of symptom and strength scales, discussed below, that are applicable to youth ages 11 to 18. The psychometric properties of these scales are also described below and have been published in an article in the Canadian journal *Child and Youth Forum*.²⁷

The goal of this project was to (1) use standardized data to objectively evaluate youth's needs and strengths to support case planning and evaluation of progress; (2) link youth and caseworker data to determine factors related to permanency; and (3) determine the relative importance of multi-informant data, including from youth, for case planning.

Methods

Data Source

Data analyzed in this study were collected from 2007 to 2009 using Polaris-Child Welfare (Polaris-CW; see www.polarishealth.com), a computer-supported behavioral health outcomes assessment system designed for child welfare agencies. Interagency treatment team members (counselors, case managers, therapists), youth and their families (birth, foster or other caregivers) completed online assessments to provide information useful in monitoring mental health status and progress.

Sites recruited for the study were located in Pennsylvania, Iowa, Missouri and North Carolina. All performance site protocols as well as the parent protocol for the project were approved through either the site's institutional review board and/or through an external institutional review board. All relevant staff at the sites were provided with training on how to use the Polaris-CW software and interpret the self- and clinician-rated reports generated by the system.

Subjects and Recruitment

Abused adolescent youth, ages 11 to 18, took a Polaris-CW assessment at intake, 30, 90 and 180 days post intake. In many of the sites, although the National Institutes of Health (NIH) and an external Institutional Review Board had approved the project, a secondary approval was required from the county and/or affiliated university. A Certificate of Confidentiality covering the project data was obtained as well.

Because update data is crucial to the prediction of outcomes, private agencies participating in the project were reimbursed \$33 per completed update assessment; the money came from the NIH grant that funded the project. The county agencies that participated were not reimbursed because their mandates did not allow it. Subjects were recruited via discussions with case managers and caseworkers who explained the benefits and risks of participation in the project. In all cases, written consent was obtained before the youth completed automated assessments for the project.

During the data collection period, caseworkers were encouraged to share the reports with youth and families, in line with the values of the Child and Adolescent Service System Program Model (CASSP). Sites indicated that they shared the reports at least half of the time, and that doing so increased a family's willingness to complete future assessments.

The final analysis sample included data from both youth and clinicians who completed the Polaris-CW intake assessment at the performance sites (n=175) and for whom permanency status information was available. The data sample excluded youth who were living at home at the time of intake. Upon review of case records, caseworkers reported that nine youth were already in a permanent placement with parents at intake (possibly at risk for removal). An additional seven youth reported living with parents at intake. These cases were excluded from the current analyses (n=13). The remaining sample consisted of 162 youth.

Characteristics of the final sample are shown in Table 1. The mean age of the youth enrolled in the study was 15.77, and gender distribution was roughly even (48% male; 52% female). Minorities were over-represented; the racial breakdown was as follows: 63% African-American, 26% White, 1% Native American and 10% other. Fifteen percent of the sample was Hispanic or Latino. All youth were in out-of home placements, including foster care (67%) and residential facilities (20%). Almost one-third of youth in the sample had no contact with parents in the prior month (32%). According to clinicians, 46% of the youth had experienced moderate to severe neglect, 37% had been emotionally abused, 17% were physically abused and 9% had been sexually abused. Approximately 16% had significant problems with depression, 7% used alcohol or drugs, 18% had a history of running away and 13% had engaged in criminal activities.

Permanency was measured by having treatment sites submit placement status on their enrolled youth six months after intake. Sites were asked to fill out a spreadsheet with information on the type of placement and whether the performance site perceived it as permanent. The data was coded into two broad categories:

Permanent Placement at Update (Good Outcome). This included the following status categories: returned to parents, kinship, adopted, pre-adoption, guardianship, enrolled in college and emancipated.

No Permanent Placement at Update (Bad Outcome). This included no permanent placement (foster care, residential placement, RTC, runaway, incarcerated) and “transferred out,” meaning the youth was transferred into a different program.

Thirty-three (33) of the 162 youth in the sample (20.4%) had a permanent placement at update, 129 (79.6%) did not have a permanent placement six months post intake. Youth with good outcomes appeared similar to those with poor outcomes on many of the intake characteristics.

Instruments and Measures

Youth Self Assessment—One key goal of the NIH grant project was to construct a youth self-report assessment that could help caseworkers determine whether a youth requires mental health treatment to deal with the effects of abuse and neglect, and then monitors his or her progress. Specifically, the youth assessment was structured to gather information on: (1) demographics; (2) mental health symptomology; (3) PTSD and abuse adjustment; (4) development of strengths; and (5) screens for chemical dependency.

The youth component of the assessment includes items ranked at a 5th grade reading level, and appropriate for ages 11 to 18. In addition, as part of the original scientific validation of the tool to NIH, a series of items were constructed that assessed whether or not a youth could complete the assessment reliably. More than 99% of the youth reported that they either answered all or most of the questions as well as they could; seventy-four percent said they had no difficulty using the computer to complete the assessment. The results from the NIH validation study also showed that only 5% of the youth did not understand some or most of the items in the assessment.

The strength assessment items were reduced into the below scales by means of factor analysis. In the original product, there was considerable overlap across the constructs – the new strength constructs listed below with their psychometric reliabilities provide a simpler structure in which to view youth strengths as they apply to recovery from trauma.

The youth assessment contained the following symptom and strength scales:

Youth Abuse Victimization-Adjustment (AVA): The AVA scale focuses on the identification of factors associated with recovery from abuse, and its impact on self and relationships. The AVA scale content draws heavily upon research findings that show abuse and high levels of shame are associated with poor adjustment;³¹ relational problems such as projective fantasy and approach-avoidance conflicts;³² and use of self-silencing techniques

such as conflict avoidance, suppressing anger and putting the needs of others ahead of oneself.³³ The AVA scale consists of 11 attitudinal items (e.g., it doesn't matter if I am hurt because I am bad; I blame myself for bad experiences) that ask the youth to discuss the effects of abuse, as opposed to defining and discussing actual abuse events. All AVA scale items are on a six-point scale ranging from Strongly Agree to Strongly Disagree. Internal consistency in the NIH validation sample was .93.

Youth PTSD: A PTSD scale was designed by recasting selected symptoms from the Diagnostic and Statistical Manual, Fourth Edition for self-report to address a youth's intrusive, hyperarousal and avoidance PTSD symptomology. Additional items were added after reviewing relevant literature, especially as it pertains to dissociation from severe abuse, and by consultation with child welfare experts. The PTSD scale contains 10 items that ask the youth to indicate, based on a "bad experience" (e.g., hitting, "bad" touching, verbal abuse), how often a specific PTSD-related symptom has occurred in the past month—for example "can't stop thinking about the bad experience." Internal consistency is .77.

Youth Assessment of Symptomology: Youth symptom scales for Depression/Anxiety (alpha of .86), ADHD (alpha .81), Conduct Disorder/Oppositional Defiance (alpha .85), screens for chemical dependency, and serious mental health problems (e.g., Psychosis, Autism, OCD) were included in the assessment. These scales were taken from a behavioral health outcomes system, called Polaris-Youth, designed for 11- to 18-year-olds who are being treated in managed care; they have good reliability and concurrent validity.²⁷ Youth respond to questions asking whether, and how often, they have experienced specific symptoms in the past month (every day, most days, many days, some days, few days, no days).

Youth Strength Scales: Also adopted from the Polaris-Youth product were developmental strength scales (self-competence, self-acceptance, youth/parent relationship, mastery, resilience) that have predictive validity regarding treatment outcomes with severely disturbed youth.²⁷ Polaris-CW contains three of these youth strength scales based on principal component analysis: Resilience (alpha .89), a youth's perception of their feelings and behaviors in response to adversity; Life Mastery (alpha .93), a youth's perception of the extent to which they are able to internalize positive relationships and experiences, such as enjoying daily life, having hobbies, participating in community or school activities, feeling hopeful about the future; and Youth/Parent Relationship (alpha .91), an indicator of readiness for permanency.

Caseworker/Clinical-Rated Assessment of Youth—The Polaris-CW system also includes an enhanced version of the Child and Adolescent Needs and Strengths-Comprehensive tool.

In light of widespread staff turnover, to maintain an inter-rater reliability of .75 when using CANS in clinical settings, Dr. John Lyons, its author, recommends that clinicians and caseworkers undergo a structured training to learn the rating system. Accordingly, all caseworkers in the study completed the on-line training modules contained within the outcome system provided to participating agencies, and were certified to use the CANS

rating structure with their families and clients. Clinicians signed in, attended multi-media presentations of CANS training content and completed practice and test vignettes.

CANS item ratings are designed to indicate action levels, and caseworkers are encouraged to learn how to rate families systematically. For “Need” items, the four rating levels are: 0-No evidence, no need for action; 1-Watchful waiting or prevention; 2-Action, need interferes notably and must be addressed; 3-Immediate or intensive action, dangerous or disabling. Similarly, for “Strength” ratings, the following action levels were utilized: 0-Centerpiece strength—build a strength-based plan around this strength; 1-Useful strength—exists and can be used in strength-based plan but not as a centerpiece; 2-Identified strength—strength has been identified, but must be developed before it is useful in strength-based planning; 3-No strength identified—but presumes that a strength can eventually be developed.

Caseworkers provided CANS ratings at the same intervals (plus/minus 7 days) as youth data were collected (i.e., intake, 30, 90 and 180 days) in this project. Clinician ratings were collected using the Polaris-CW software platform and were completed in an average of six minutes. The software then produced a clinical report based on the ratings that indicated the presence or absence of risk factors associated with worsening mental health.

Statistical Analyses

The predictive models of permanency were developed using a sample of youth for whom both clinician- and youth-reported intake data were available (n=162). From that dataset two predictive models were created, one using only youth-reported data and a second using CANS (clinician) ratings. All of the intake variables, including Polaris-CW scale scores and risk adjusters, were considered for the analyses. Univariate correlations with final permanency status along with trauma theory identified the most promising predictors. These were entered into stepwise logistic regression analyses and the most significant predictors at every step were retained for further analysis until the final item pool was obtained for each model.

After the single-informant models were completed, combined-informant models were developed to explore the effect of including data from both sources. Because it is customary to base treatment planning on clinician appraisals, the clinician variables identified in the previous analysis were entered as a block into a logistic regression analysis first, followed by the block of youth variables, also from the previous analysis. The purpose was to determine if clinical judgments alone were sufficient to predict permanency or if adding youth input significantly improved the equation. Finally, the order of the blocks were reversed to test whether youth ratings alone were adequate or if adding clinician ratings would improve the equation beyond the effects of the youth input.

Results

Model #1-Youth-Only Model

Based on the above method, the following six youth self-report variables were retained for the Youth-Only model:

- Race (African-American versus all other races)
- I am hopeful about my future
- When I was hurt or upset at least one of my parents supported me.
- The interaction of “At least one of my parents hugged me, patted me on the back or touched me in other good ways” AND “Have you had contact with at least one of your parents?”
- The interaction of “At least one of my parents went to a big event with me” AND “Have you had contact with at least one of your parents?”
- I argued with adults.

Results of the logistic regression analysis indicated that youth who were African-American, had reported having less hope about the future, had a parent who did not attend a big event that was important to the youth and/or argued with adults were less likely to have a permanent placement at six months post-intake. These variables show that strong parental relationships with youth suggest better permanency. For example, one of the key clusters of variables centered on youth who reported being hugged or supported more often by one or more parents. The overall model relying on youth self-report variables was significantly different from the intercept-only model, $\chi^2(6)=40.68$, $p < .001$, with a Nagelkerke R-square of 0.35.

Parameter estimates are displayed in the following table:

Sensitivity of the model was determined to be 75.8% and specificity was 77.5%. Positive predictive value was substantially increased over base rate alone, 46.3% compared to 20.4%. Negative predictive value of the model was also better than base rate alone, 92.6% versus 79.6%.

Model #2- Clinician-Only Model

The second model used ratings from the CANS assessment along with specialized risk adjusters and other clinical variables embedded in Polaris-CW that improve the actionable nature of caseworker data for prediction and better case planning.

The following clinician-reported variables were selected for testing in the second model:

- Youth age
- Caseworker’s rating of the caregiver’s ability to participate in or direct the organization of the household, services, and related activities
- Caseworker’s rating of the caregiver’s current and likely future housing circumstances.
- Caseworker’s rating of the parent’s motivation for treatment
- Caseworker’s assessment of the youth’s severity of exposure to criminal activity
- Caseworker’s rating of the youth’s severity of substance abuse

- Caseworker's assessment of the caregiver's substance use
- Caseworker's assessment of the level of family strengths.

The model with these variables was significantly different from the intercept-only model, $\chi^2(8)=49.95$, $p < .001$. The Nagelkerke R-square was 0.42. Older youth, those with caregivers who have substance abuse problems and/or are from families with fewer strengths were less likely to have a permanent placement.

Parameter estimates are displayed in the following table:

Sensitivity of the model was determined to be 75.8% and specificity was 79.8%. Positive predictive value (49.0%) was substantially higher than the base rate of 20.4%. Negative predictive power was also higher than base rate at 92.8% compared to 79.6%.

These two models strongly suggest that independently, youth self-report data and clinician-reported data are important to the prediction of permanency in abused youth.

Model #3. Combined Informant Model

Analysis #1- Clinician First, Then Youth—To test the importance of youth input, beyond the effects of clinician ratings, the variables from the Youth-Only model were added as a second block to the Clinician-Only model described previously. Addition of the youth variables significantly improved the model, second step $\chi^2(6)=22.33$, $p < .001$; combined model $\chi^2(14)=72.27$, $p < .001$. The Nagelkerke R-square increased from 0.42 to 0.57.

Analysis #2- Youth First, Then Clinician—The order of entry was then reversed to test the effects of adding clinician variables after the youth variables. Addition of the clinician variables significantly improved the model, step $\chi^2(8)=31.59$, $p < .001$. The Nagelkerke R-square increased from 0.35 to 0.57 (Table 4).

Sensitivity for the Combined Informant model was 81.8%; specificity was 81.4%. Positive predictive value of the model improved to 52.9% and the negative predictive value increased to 94.6%. Characteristics of all three models can be seen in Tables 2 through 4.

ROC & AUC Analysis—The three models (Youth-Only, Clinician-Only, and Combined Clinician & Youth) were compared using ROC analysis (PASW Statistics 18.0.3) and the Areas Under the Curve (AUC) technique described by Hanley and McNeil (1983) (See Figure 1).^{34, 35} The areas under the curves were 81.8% for the Youth-Only model ($SE = 4.3\%$), 85.0% for the Clinician-Only model ($SE = 3.6\%$) and 90.6% for the Youth and Clinician model ($SE = 3.1\%$). Results of the AUC analysis indicate no significant difference between the Youth- and Clinician-Only models regarding overall sensitivity and specificity ($z = 0.62$, n.s.). Both models however, were significantly less effective than the combined Clinician and Youth model, (vs Youth-Only, $z = 2.42$, $p < .01$, vs Clinician-Only, $z = 2.16$, $p < .05$)(Table 5).

Discussion

Summary of Findings

These results echo several themes in child welfare literature. First, permanency rates for minority youth in this country remain unacceptably low. The sample in this study mirrors child welfare youth nationwide in terms of racial disparity and the high numbers of older youth who are placed out of the home. Among the youth in this sample, 63% were African American, which may explain in part, why the rates of permanency found six months post-intake were so low. The results here also support the qualitative studies with minority youth who often describe their experiences with case planning as isolating and frustrating, because they feel their opinion of what matters is not adequately considered.³⁶ But when their opinions are asked for, (1) a majority of youth who participated appreciated being able to provide behavioral data; (2) 25% said they were glad to “do it” because it was likely to help their treatment; and (3) an additional 47.5% of youth said they “didn’t mind doing it.”

Adding the youth’s voice, as demonstrated in this project, can have a positive impact on how a youth reacts to and engages in case planning, and improves the overall predictive power of the model. In particular, the model based on youth self-report data contributed notably to the prediction of outcomes; the majority of the significant variables accounting for 35% of explainable variance were relational strengths within the family. This information would have been minimized, or potentially missed, if the agency had solely relied on clinician rated variables, which were mostly related to the youth’s environment or behavioral health care, and were considerably less strength-oriented.

The other argument for inclusion of multiple voices is purely financial. Data continues to mount regarding the failure of many systems to achieve permanency for adolescent youth before they “age out.” The growing price tag of this failure manifests in a number of long-term consequences, such as unemployment, crime and the adult welfare system. The direct and indirect costs—currently at about \$70 billion each year—include those connected to juvenile delinquency, special education, mental health and lost productivity (Fromm, 2001).

In relative terms, the added cost and time to include additional perspectives is nominal. In fact, as technology continues to improve, the cost of collecting data from youth only goes down. Most outcomes assessments can be completed via cloud computing platforms, and require little more than an Internet connection and a basic computer. The time spent completing the assessments and reviewing the reports with the youth and their families could be considered part of the overall treatment and intake processes—not an additional burden. And from the ten-thousand-mile-high view, with better prediction of outcomes and improved anticipation of services needed, families receive more of the right services the first time around, potentially reducing the overall time they are involved in the child welfare system.

It is important to note that although the performance sites had access to behavioral scale scores and item level data about the youth they were serving, they did not have access to the predictive factors derived here to help improve permanency. Participating agencies, however, were given objective data to help determine the youth’s mental health status, but

there is no way to confirm the degree to which the report data was viewed and later implemented into case plans. It would require a future study comparing the use of the data versus traditional case planning to determine whether access to an outcome system, such as the one used in this project, impacts placement decisions as viewed through the lens of race and age.

The exercise of deriving the predictive models shown here clearly demonstrates that race is a prominent issue that continues to impact which youth achieve permanency. However, it is important to note that there were a number of other factors that are modifiable via treatment—for example, parental behavior towards the youth or the development of youth strengths. These models show the importance of race as a reflection of system challenges, while leaving open the opportunity for systems to emphasize the potential of the youth they serve.

Implications for Behavioral Health

The implications of this project are significant for the behavioral health field. First, there may be a positive role for technology to improve the detection of behavioral health conditions and outcomes of abused and neglected youth, particularly among minorities. Second, the study here shows that within populations of marginalized youth, automated assessment may provide a voice that can improve case planning. And finally, clinical data collected over time may be of significant value when paired with service and/or other data to better understand factors related to long-term outcomes in youth.

But to achieve the next level of improvements in clinical care, treatment facilities must see the ongoing collection of assessment data as “business as usual.” Despite the tangible benefits to using data to enrich case planning, evaluate program performance and predict and improve long-term outcomes, it will require a cultural change across the system. Grissom et al., have characterized this shift as the development of a “learning organization.” This means that instead of collecting random data elements that are not used, organizations commit to improving clinical care by using assessment data to help make key decisions, such as placement status. Once organizations commit, tremendous positive change in clinical care is possible.³⁷

Another implication of this project was the reaffirmation of the need to collect, whenever possible, data from multiple informants. In the public sector, this often means that data should be collected not just from caseworkers, but also from youth and when feasible, parents. The results here demonstrate that when youth input is included, CASSP values are honored and the statistical power of prediction is enhanced. Moreover, with self-report a “non-tarnished” voice of the parents and youth is preserved. Additional benefits include providing the ability to show families how their youth are changing over time. In many cases, especially at the higher levels of care, change is not as evident on a day-to-day basis.

Finally, this project is a testament to the importance of identifying and utilizing youth strengths whenever possible to support treatment planning and to enhance the prediction of outcomes. Several of the models derived identified development of family strengths along with optimism as key factors related to improved permanency. Accounting for the complex

interaction between trauma, a youth's strengths and the potential for growth is a crucial component to any intervention with child welfare youth.

This study's glimpse into today's child welfare system isn't without hope. Youth can recover from abuse and neglect, and we can narrow the gap of racial disparity. But part of the solution to achieve this goal is to incorporate innovative technology and systematic data collection to empower the child welfare system to better address the short- and long-term needs of the youth placed in its care.

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Figure 1.
ROC Curve

Table 1

Sample Characteristics

	Good Outcome (n=33)	Poor Outcome (n=129)	Sample Total (n=162)	
Male (Y) n(%)	16 (48.5%)	62 (48.1%)	78(48.1%)	$\chi^2(1) = 0.00$, n.s.
Hispanic/Latino(a) (Y) n(%)	7 (21.2%)	18 (14.0%)	25 (15.4%)	$\chi^2(1) = 0.58$, n.s.
Race (Y) n(%)				
Black/African- American	14 (42.4%)	88 (68.2%)	102 (63.0%)	$\chi^2(1) = 6.43$, p < .05 ⁺
White	12 (36.4%)	30 (23.3%)	42 (25.9%)	
Native American Indian	1 (3.0%)	1 (0.8%)	2 (1.2%)	
Other	6 (18.2%)	10 (7.8%)	16 (9.9%)	
Age (C) mean (s.d.)	14.94 (1.90)	15.98 (2.41)	15.77 (2.35)	F(1,160)=5.27, p < .05
Current Living Arrangement (Y) n(%)				
Foster Care	26 (78.8%)	82 (63.6%)	108 (66.7%)	$\chi^2(1) = 2.10$, n.s. ++
Residential Treatment Facility	7 (21.2%)	25 (19.4%)	32 (19.8%)	
Juvenile Justice Facility	0 (0.0%)	1 (0.8%)	1 (0.0%)	
Psychiatric Hospital	0 (0.0%)	0 (0.0%)	0 (0.0%)	
Other	0 (0.0%)	21 (16.3%)	21 (13.0%)	
Had Contact with at Least One Parent in Past Month (Y)	29 (87.9%)	82 (63.6%)	111 (68.5%)	$\chi^2(1) = 6.12$, p < .05
Victim of Moderate/Severe Sexual Abuse (C) n(%)	5 (15.2%)	10 (7.8%)	15 (9.3%)	$\chi^2(1) = 0.95$, n.s.
Victim of Moderate/Severe Physical Abuse (C) n(%)	5 (15.2%)	23 (17.8%)	28 (17.3%)	$\chi^2(1) = 0.01$, n.s.
Victim of Moderate/Severe Emotional Abuse (C) n(%)	10 (30.3%)	50 (38.8%)	60 (37.0%)	$\chi^2(1) = 0.48$, n.s.
Victim of Moderate/Severe Neglect (C) n(%)	17 (51.5%)	58 (45.0%)	75 (46.3%)	$\chi^2(1) = 0.23$, n.s.
Moderate/Severe Depression (C) n(%)	5 (15.2%)	21 (16.3%)	26 (16.0%)	$\chi^2(1) = 0.00$, n.s.
Problems with Drugs and/or Alcohol (Y) n(%)	5 (15.2%)	6 (4.7%)	11 (6.8%)	+++
History of Running Away (C) n(%)	5 (15.2%)	24 (18.6%)	29 (17.9%)	$\chi^2(1) = 0.04$, n.s.
History of Criminal Activity (Misdemeanor or Felony) (C) n(%)	2 (6.1%)	19 (14.7%)	21 (13.0%)	+++

(Y) reported by Youth (C) reported by Clinician

⁺ Black/African-American compared to all others⁺⁺ Foster Care compared to all others⁺⁺⁺ 25% or more cells have expected count < 5

Logistic Regression Analysis of 6-Month Permanent Placement Status for 162 Youth in Child Welfare Programs Using Youth Self-Report Data.

Table 2

Youth-Report Predictors	β	SE β	Wald's χ^2	df	p	e ^b (odds ratio)
Constant	1.907	1.084	3.094	1	.079	N/A
African-American (0=no, 1=yes)	-.878	.491	3.193	1	.074	.416
Hopeful	-.718	.213	11.368	1	.001	.488
Parent is supportive	.361	.158	5.219	1	.022	1.435
Parent hugged child	.112	.049	5.186	1	.023	1.119
Parent attended event with/for child	-.162	.056	8.402	1	.004	.850
Argued with Parents	-.370	.182	4.151	1	.042	.690
Test			χ^2	df	p	
Overall model evaluation			40.68	6	.000	
Goodness-of-fit test Hosmer & Lemeshow			8.51	8	.385	

Note. SPSS Version 16.0 for Windows. Cox and Snell R² = 0.22. Nagelkerke R² = 0.35. N/A = not applicable.

Logistic Regression Analysis of 6-Month Permanent Placement Status for 162 Youth in Child Welfare Programs Using Clinician-Report Data.

Table 3

Clinician-Reported Predictors	β	SE β	Wald's χ^2	df	p	e ^b (odds ratio)
Constant	.746	1.927	.150	1	.699	N/A
Organization	1.726	.682	6.393	1	.011	5.616
Residential Stability	1.534	.747	4.215	1	.040	4.638
Highly motivated parent	1.475	.557	7.020	1	.008	4.372
Exposure to crime	.929	.295	9.945	1	.002	2.532
Youth Substance Abuse	1.476	.522	7.983	1	.005	4.374
Parent Substance Abuse	-1.537	.947	2.631	1	.105	.215
Family Strengths	-.818	.342	5.726	1	.017	.441
Youth Age	-.230	.126	3.320	1	.068	.795
Test	χ^2 df p					
Overall model evaluation	49.95 8 .000					
Goodness-of-fit test Hosmer & Lemeshow	9.25 8 .322					

Note. SPSS Version 16.0 for Windows. Cox and Snell $R^2 = 0.26$, Nagelkerke $R^2 = 0.32$. N/A = not applicable.

Table 4

Logistic Regression Analysis of Permanent Placement Status for 162 Children in Child Welfare

Predictor	Clinician	and Self Report	β	SE β	Wald's χ^2	df	p	e^{β} (odds ratio)
Constant			1.884	2.306	.667	1	.414	N/A
Block 1: Clinician-Reported Variables:								
Organization			2.093	.901	5.392	1	.020	8.108
Residential Stability			1.468	.960	2.336	1	.126	4.339
Highly motivated parent			1.401	.641	4.773	1	.029	4.060
Exposure to crime			.944	.350	7.274	1	.007	2.570
Youth Substance Abuse			1.058	.620	2.910	1	.088	2.881
Parent Substance Abuse			-2.850	1.347	4.479	1	.034	.058
Family Strengths			-.852	.435	3.844	1	.050	.426
Youth Age			-.140	.140	1.000	1	.317	.869
Block 2: Youth-Reported Variables:								
African-American (0=no, 1=yes)			-.775	.622	1.552	1	.213	.461
Hopeful			-.513	.266	3.722	1	.054	.598
Parent is supportive			.608	.204	8.866	1	.003	1.837
Parent hugged child			.062	.067	.866	1	.352	1.064
Parent attended event with/for			-.185	.082	5.104	1	.024	.831
Argued with Parents			-.488	.249	3.859	1	.049	.614
Test					χ^2	df	p	
Analysis 1: (Clinician, Then Youth)								
Step 1 (Clinician Variables)					49.95	8	.001	
Step 2 (Youth Variables)					22.33	6	.001	
Analysis 2: (Youth, Then Clinician)								
Step 1 (Youth Variables)					40.68	6	.001	
Step 2 (Clinician Variables)					31.59	8	.001	
Overall model evaluation					72.27	14	.000	

Predictor Clinician and Self Report	β	SE β	Wald's χ^2	df	p	e^{β} (odds ratio)
Goodness-of-fit test Hosmer & Lemeshow			12.27	8	.140	

Note. SPSS Version 16.0 for Windows. Cox and Snell $R^2 = 0.36$. Nagelkerke $R^2 = 0.57$. N/A = not applicable.

Table 5

Test Characteristics at Optimal Cut Value

Model	Sensitivity (%)	Specificity (%)	PPV	NPV	ROC area ^b
<i>Youth-Only</i>	75.8%	77.5%	46.3%	92.6%	.82 ± .08
<i>Clinician-Only</i>	75.8%	79.8%	49.0%	92.8%	.85 ± .07
<i>Youth & Clinician</i>	81.8%	81.4%	52.9%	94.6%	.91 ± .06

PPV = Positive Predictive Value NPV = Negative Predictive Value

^a 95% confidence interval (Hanley & McNeil, 1982).