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Risk Assessment Matters, But Only When Implemented Well: A Multisite Study in Juvenile Probation

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There is a strong movement toward juvenile justice agencies' use of risk assessment and risk-need-responsivity approaches to improve case management decisions for young offenders. However, little is known about whether adoption of risk assessment actually effectuates any changes in the way young offenders are handled. This was a multisite study of the impact on case processing of implementation of the Structured Assessment of Violence Risk in Youth (SAVRY) or Youth Level of Service/Case Management Inventory in 6 juvenile probation offices using a prepost design and 1,694 propensity score-matched young offenders. Consistent with the risk principle, there were significant changes to at least some areas of case processing in all but 1 site, most notably with respect to decreases in the amount of supervision youth received and in rates of out-of-home placement. The nature and extent of the impact varied as a function of sites' characteristics and implementation quality, not as a function of the risk assessment used. No increases in recidivism were observed in any site, and there was a significant reduction in recidivism in 1 site. The key benefits of implementation of valid risk assessment and case management procedures were improved resource allocation and fewer instances of inappropriate interference in youths' lives without an apparent increased risk to public safety.

Keywords: SAVRY, YLS/CMI, implementation study, juvenile, RNR

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Considerable attention has been directed toward reforming juvenile justice over the past decade by integrating research evidence and principles of adolescent development into practice (National Research Council [NAS], 2013). One prominent recommendation for reform has been to base individual programming decisions on risk and criminogenic needs. The NAS (2013) strongly recommended structured risk and need assessment tools (RNAs) be used to identify low-risk youth who could be handled less formally, to match youth to appropriate treatment, and to target high-risk youth for more intensive interventions. Similarly, the Council of State Governments (Seigle, Walsh, & Weber, 2014) listed use of valid RNAs for supervision, service, and resource-allocation as one of the four core principles for reducing recidivism and improving outcomes for youth. Consequently, most states today have instituted a RNA in juvenile probation for use in case planning (Wachter, 2015).

These recommendations stem from evidence that individualized case management models, such as risk-need-responsivity (RNR; Andrews & Bonta, 2003, 2010; Andrews, Bonta, & Hoge, 1990), are effective means for reducing recidivism whereas more global approaches toward punishment are not (e.g., Gatti, Tremblay, & Vitaro, 2009; Lipsey, 2009; Lipsey & Cullen, 2007; Loughran et al., 2009; MacKenzie, Wilson, & Kider, 2001; Petrosino, Turpin-Petrosino, & Guckenburg, 2010). The RNR framework suggests the highest risk offenders should receive the most intensive programming to reduce risk of reoffending (*risk principle*), and the programming should specifically target the individual's criminogenic needs (the dynamic risk factors that if changed, could reduce reoffending; *need principle*) while taking into account specific characteristics that may affect that individual's response (*responsivity principle*). Aspects of these principles have been supported

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by rigorous primary research and meta-analyses, mostly with adult populations (Andrews & Dowden, 2006; Dowden & Andrews, 1999, 2000; Gendreau, Smith, & French, 2006) but also with youth (Lipsey, 2009).

Despite advances in the adoption of RNAs and awareness of the effectiveness of RNR, few studies have examined whether jurisdictions actually use risk assessment information when making decisions about how they handle young offenders (e.g., Luong & Wormith, 2011; Peterson-Badali, Skilling, & Haqanee, 2015; Vieira, Skilling, & Peterson-Badali, 2009). Even fewer have examined whether adoption of a RNA actually led to changes in the way a jurisdiction managed young offender cases (e.g., Young, Moline, Farrell, & Biere, 2006). The NAS (2013) noted that the field needed implementation and outcome research about how information from RNAs is translated into practice. The current multisite study addresses this recommendation and extends the extant literature by using a prepost design to examine the impact at multiple levels of case processing of implementing valid RNAs in juvenile probation.

Use of Risk Assessment by Probation Officers

Studies of probation officers (POs) have found that the actual use of RNAs in decision-making in the justice field is limited. Front line workers may undervalue and, consequently, underuse results of RNAs in case management (Haas & DeTardo-Bora, 2009; Shook & Saari, 2007). For example, in a survey of juvenile probation officers (JPOs) and court officials in 12 courts in four states, most reported that they stopped using the risk tools within 2 years of adoption, only half of the court professionals and JPOs ever used the tools regularly in their decision-making, and overrides were very common (Shook & Saari, 2007). In a national survey of POs in the adult system, Miller and Maloney (2013) reported that even among those who were most compliant with administering RNAs, much discretion was exercised when choosing the intensity and type of interventions to use, rather than using the RNA to guide these decisions.

Studies of the application of RNR principles to individual probation cases are consistent with findings from group level studies of probation officers' practices. In an examination of use of the Youth Level of Service/Case Management Inventory (YLS/CMI; Hoge & Andrews, 2006) by JPOs, for example, Peterson-Badali et al. (2015) reported that on average only 1.4 identified needs per youth were addressed by a service at the necessary intensity, and 40% of youth had no needs addressed while on probation. Similarly, in an archival study of youth probationers in two departments using the Saskatchewan Youth Edition of the LSI (LSI-SK; Andrews, Bonta, & Wormith, 2001), Luong and Wormith (2011) found youth workers overidentified and overreferred youth in some need areas but had strong correspondence with the needs identified by the RNA in other areas. On a positive note, risk level was strongly associated with the supervision level JPOs assigned to probationers.

Importance of Implementation Quality

One explanation for the limited use of RNAs in decision-making is that the extent of their use and, consequently, impact on case processing, are tied to the quality of the implementation process (Bonta, Bogue, Crowley, & Mottuk, 2001; Bonta, Bourgon, Rugge, Gress, & Gutierrez, 2013; Latessa & Lovins, 2010; Lipsey, 2009). Moreover, adoption of a RNA is likely to have a bigger impact if it is paired with an individualized case management approach, such as RNR (Bonta et al., 2011). An assessment tool is unlikely to lead to any change if staff are not trained how to use the tool in their decision-making and if the work environment does not reinforce use of the tool. Implementation activities for a RNA include, at a minimum, staff training on how to conduct the risk assessment and how to use it in decisions; revision of office policies to include the risk assessment and decision-making processes (e.g., RNR); and quality assurance.

Very few studies have examined actual changes that result in the handling of probation cases after implementation of a RNA. In the adult system, Flores, Lowenkamp, Holsinger, and Latessa (2006) found the Level of Service Inventory—Revised (LSI-R; Andrews & Bonta, 1995) risk level was positively correlated with reincarceration of probationers. However, this was only the case when the LSI-R was administered by POs with adequate training and in offices where the tool had been in place for 3 years or more. In another study, significantly reduced recidivism rates were observed among caseloads of POs who had intensive training in a RNA and RNR-related case management compared with caseloads of POs without such training (Bonta et al., 2011). In a prepost study of implementation of a RNA in five counties in Maryland, Young et al. (2006) found that, on average, adherence to the policy for administering the RNA (that had not been validated at the time) was only 55%. On a positive note, use of the RNA increased the weight JPOs put on some dynamic risk factors in placement decisions.

Current Study

The *Risk/Needs Assessment in Juvenile Probation: Implementation Study* (RNAJP) is a quasi-experimental, prepost prospective study of the changes in case processing effectuated by implementing a RNA in six juvenile probation offices in two states (three offices per state).[1] Researchers guided the states to select their own RNAs from among those with the most evidence of reliability and predictive validity. Louisiana (LA) implemented the Structured Assessment of Violence Risk in Youth (SAVRY; Borum, Bartel, & Forth, 2006) and Pennsylvania (PA) implemented the YLS/CMI (Hoge & Andrews, 2006). Both states implemented these well-validated RNA tools for dispositional and case planning using comprehensive implementation procedures (Vincent, Paiva, Cook, Guy, & Perrault, 2012).

Previously published findings based on the present sample have been promising. First, JPOs across the six sites indicated implementation of the RNA and training on RNR led to changes in their attitudes about youths' risk to reoffend, such that far fewer youth were seen as high risk (Vincent, Paiva, et al., 2012). It also led to JPOs placing greater emphasis on dynamic risk factors and less emphasis on static factors and the current offense when making disposition recommendations and service referrals. The majority of

[1] Results for one site in this study have been reported previously (Vincent, Guy, Gershenson, & McCabe, 2012). However, it was included in this article so it could be viewed in combination with results from the other five sites.

JPOs reported use of the RNA in most of their decisions and recommendations.

Implementation of a risk tool for dispositional and case planning should have an impact on a wide range of case processing decisions, including disposition, allocation of services, level of community supervision, and whether youth are placed out-of-home (in secure or nonsecure settings). The current study focused on the impact of implementing the risk principle in these decisions, anticipating a decrease in use of restrictive monitoring and incarceration once a RNA and RNR practices were implemented. Specifically, we hypothesized *decreases* in rates of (a) more restrictive dispositions, (b) out-of-home placements, and (c) more intensive supervision levels. We also hypothesized that, in accordance with the risk principle, (d) restrictive dispositions, placements, and levels of supervision would be *positively* related to risk, and (e) high-risk youth would receive more services than lower risk youth. Lastly, we hypothesized that (f) reoffending *would not increase* after implementation of the RNA and RNR.

Method

This multisite study used a quasi-experimental, prepost implementation design with propensity score matching. Preimplementation samples were drawn from all youth processed in the juvenile courts at each site during the year before implementation of a valid RNA, either consecutively or randomly depending on the quantity of new cases. Postimplementation samples were drawn from all consecutive youth cases processed in the juvenile courts during the year after standardized implementation of a RNA. The pre- and postimplementation samples were mutually exclusive. The only exception to the use of prepost implementation design across sites was that in one site in PA, a control group design between two units was used because the probation office was large and the historical data tracking was unreliable.

Implementation Protocol

A detailed description of these implementation procedures has been reported elsewhere (Vincent, Paiva, et al., 2012). The relevant details are summarized briefly here. First, researchers conducted an orientation training with JPOs and stakeholders (e.g., judges, attorneys) whenever possible about risk/needs assessment and what to expect with the implementation. Second, researchers worked with administrators to develop and implement a comprehensive policy about how and when the RNA would be completed and used in decisions and quality assurance around completion of the RNAs and use in case planning (supervisors were to review and approve all completed assessments and case plans). These policies were directly in-line with RNR, including how disposition recommendations would be made and communicated to judges and how to match supervision level and number of service referrals to risk level. Sites differed with respect to when the RNA would be conducted, with most conducting the assessment postadjudication/predisposition (or immediately after disposition if it was not conducted before) and two sites conducting the RNA preadjudication at probation intake (*YLS/CMI Sites 1 and 2*).

Third, to facilitate service-to-need matching, administrators revised the case plan forms to be organized according to criminogenic need areas identified on the RNA (e.g., substance abuse, family circumstances). JPOs were trained that high-risk youth should receive more services and more supervision and low risk youth should receive few to no services and little supervision, which was reinforced in the office policies. Finally, JPOs completed a 2-day workshop to learn how to rate the YLS/CMI or SAVRY, completed three practice cases over the subsequent 2-months, and completed a half-day workshop about the new policies and RNR.

Sample

Data were collected from six county probation offices (sites), three per state (LA and PA). Sites differed with respect to the number of youth processed per year, the rate of out-of-home placement, and geo-location (urban vs. rural). Cases within each site were eligible for sample inclusion if they met criteria to receive a RNA per each site's policy. In *YLS/CMI Sites 1 and 2*, cases were selected based on court referral dates because the RNA was conducted at probation intake with all youth referred to court that might be adjudicated (i.e., youth with charges that were withdrawn or dismissed, referred solely for nonpayment of fines, or who were transferred out of country were excluded). In the remaining four sites, cases were selected based on adjudication dates because the RNA was used with youth adjudicated for a delinquency offense or, in LA only, a Family in Need of Services (FINS) offense. Table 1 presents characteristics of the six sites. Initial samples ranged from 161 to 247 cases preimplementation, and from only 105 to 232 postimplementation because both states had a drop in youth referrals in the subsequent year.

Risk Assessment Procedures and Measures

In all sites, JPOs were trained to rate the risk instrument using information from files and interviews with the youth, a parent, and the youth and parent together. JPOs were provided with semistructured interview scripts developed to collect information needed to rate the RNAs.

Structured Assessment of Violence Risk in Youth (SAVRY; Borum et al., 2006). The SAVRY is based on the structured professional judgment (SPJ) approach (see Douglas & Kropp, 2002), in which evaluators offer a categorical summary risk raking (SRR) of overall risk for future violence (low, moderate, or high) that is based on professional judgment after analysis of the relevant risk and protective items. The SAVRY comprises six protective factors (rated absent or present) and 24 risk factors (rated as low, moderate, or high) and contains both static and dynamic risk factors. Meta-analyses have shown the SAVRY to have good predictive validity in a variety of young offender populations (average area under the curves [AUCs] of 0.71; Guy, 2008; Singh, Grann, & Fazel, 2011) that is comparable for violent and nonviolent reoffending (Olver, Stockdale, & Wormith, 2009). Field interrater reliability (IRR) for the present study based on 80 cases was good for the SRR ($ICC_1 = .71$) and excellent for total scores ($ICC_1 = .86$; Vincent, Guy, Fusco, & Gershenson, 2011). In this study, SAVRY risk level is the JPOs' SRR.

Youth Level of Service/Case Management Inventory (YLS/CMI; Hoge & Andrews, 2006). The YLS/CMI comprises 42 static and dynamic risk factors across eight scales (e.g., Attitudes/Orientation). Total scores based on summing the dichotomously

Table 1
Site Descriptions and Methods

	SAVRY/Louisiana site number			YLS/Pennsylvania site number		
Site description	1	2	3	1	2	3[b]
Referral rate per year	High	Low	High	High	Low	High
Location	Urban	Rural	Urban	Urban	Rural	Urban
Implementation date	February 2009	February 2009	December 2009 (delayed to avoid cohort effects)	June 2009	June 2009	October 2009 (delayed to avoid cohort effects)
Timing of RNA	Postadjudication/predisposition			Preadjudication at probation intake[a]		Postadjudication/ predisposition
Sample *N*s before match (pre, post)	274, 217	161, 105	239, 130	242, 232	186, 116	161, 231
N each sample after match	205	92	117	221	104	108
Case management follow-up period: Mean months (*SD*)	11.53 (5.82)	11.96 (4.55)	11.35 (3.12)	9.18 (3.97)	10.48 (3.87)	9.72 (3.57)
Sample selection method/timing						
Preimplementation	Random, adjudications between April and October 2008	Consecutive, all adjudications in 2008	Random, adjudications between November 2008 and July 2009	Random, referrals between April and October 2008	Consecutive, all referrals in 2008	Consecutive, all adjudications for 6 months
Postimplementation	Consecutive, all adjudications for 6 months	Consecutive, all adjudications for 11 months	Consecutive, all adjudications for 9 months	Consecutive, all referrals for 6 months	Consecutive, all referrals for 9 months	Consecutive, all adjudications for 6 months

[a] Completed the RNA preadjudication because there was a well-staffed probation intake unit and the state had in place legal protections to prevent RNA information from being disclosed to the court before adjudication. [b] Because this site processed a very high rate of cases, the pre-post implementation design was not used; rather, at this site one probation unit implemented the RNA with RNR (implementation unit) and the other unit did not (control). In this case, the "pre" implementation sample is the control group sample.

rated items are used to assign youths to an actuarial-based categorical risk level (low, moderate, high, or very high). Evaluators also can rate responsivity factors and provide their own estimate of risk for future offending; however, this professional judgment rating was not yet implemented in the study sites at the time of data collection. Meta-analyses indicate the YLS/CMI has good predictive validity for both nonviolent (weighted correlations of .29) and violent (weighted correlation of .26) reoffending that is comparable to that of the SAVRY (Olver et al., 2009). The JPOs' IRR in this sample for the YLS/CMI total score was high ($ICC_1 = .84$; Guy & Vincent, 2011) based on 61 cases double-rated by a JPO and a research assistant (RA). In this study, YLS/CMI risk level is the actuarial risk level.

Data Collection Procedures and Variable Operationalization

RAs collected data from administrative databases and probation files and participated in biweekly calls with the researchers to troubleshoot data issues. Files contained JPOs' notes, social histories, case plans, and psychological assessments if available. Data coded for each case included: psychosocial history variables (e.g., prior mental health or substance abuse treatment, child welfare involvement, and school status); prior offenses; dates of hearings; disposition dates and types; placement dates and locations; probation violations; the RNA; and all service referrals.

The study examined recidivism and four types of dependent variables related to case management. Length of case management data collection varied across sites as a function of how quickly the target sample sizes were reached and how long sites required to fully implement the RNA. Case management data were collected at each site from the last adjudication or referral date in the pre- and postimplementation samples to each case's probation termination date or the end of the follow-up period, whichever came first, for an average 10.70 months (range = 9.18 to 11.96 months; see Table 1). The "case management follow-up period" was consistent for the pre- and postsamples within sites to compare groups over the same length of time.

Most restrictive disposition. Disposition was defined broadly to include informal processing. The most restrictive disposition received after intake or after the initial adjudication was identified depending on the level of restriction on a youth's mobility (secure correctional placement being the most restrictive). For example, if the youth spent time in detention awaiting disposition and received a disposition of "detention time served" plus 1-year probation, the most restrictive disposition was detention. The disposition options were consistent across both states except for the addition of a consent decree option in PA, which involves

supervision and services but youth are not adjudicated unless they violate their supervision.

Out-of-home placements. Placements were any removal from the home associated with restrictions on mobility (i.e., detention, shelters, group homes, residential facilities, inpatient treatment facilities, and secure correctional facilities). Placement rates were examined in two ways: (a) whether youth were placed immediately after disposition, and (b) whether youth spent any time in a placement during their probation before the end of the follow-up period. It was essential to track both time points because it is common for youths' first placement to occur after a supervision failure.

Community supervision. Supervision refers to the initial level of monitoring to which youth were assigned when first placed on probation, including after release from a placement. There were three primary levels: minimum (one face-to-face contact every 30 to 90 days), medium (one face-to-face contact every 30 days), and maximum (one face-to-face contact every 2 weeks). For the few cases when youth were placed on "intensive supervision" it was coded as "maximum." Some sites also had "nonreporting."

Number of service referrals. Number of service referrals made by JPOs for each youth comprised community services aimed at treatment or rehabilitation (e.g., mentoring programs, functional family therapy, and counseling). Sanction-oriented interventions such as community service and electronic monitoring were not counted.

Recidivism. Recidivism was defined as (a) a new petition or (b) a new adjudication after the initial adjudication or court referral. Reoffense data were obtained from juvenile and adult court records for an average of 18 months ($SD = 3.23$ months) from the relevant start date (date of first referral or adjudication). The follow-up length for recidivism data tracking was consistent across sites. Offenses were categorized as: (a) *violent* (offenses related to actual or threatened harm to persons, including sex offenses), (b) *nonviolent*, (c) *violations* (charges for probation violations and status offenses), and (d) *any*, which included all types. Violent, nonviolent, and violation categories were mutually exclusive. Time at-risk was calculated separately for each offense category, after accounting for time spent in any placements, using the follow-up date as the end point for youth who did not reoffend.

Data Analysis Procedures

Analyses were conducted separately for each site because sites differed with respect to the timing of the RNA administration, which would differentially affect the ability for risk to influence case management decisions made earlier in case processing. Moreover, there was variability in some site characteristics, such as initial rates of placement that were expected to influence the strength and direction of the implementation's effect, which could diminish the overall results if data were combined across all sites. Table 1 presents key characteristics associated with the methodology used and samples selected at each site.

Cramer's V was used to examine the association between the dichotomous case-processing outcomes and categorical risk levels identified on the RNAs and analysis of variance (ANOVA) was used for continuous case-processing outcomes. These analyses were conducted with the full postimplementation samples in each site to examine the sites' decision-making processes. Comparisons between the pre- and postimplementation samples were made after propensity score matching within each site to equate the groups along a number of important youth characteristics (e.g., offense history, current offense, demographics, and psychosocial history) that might affect case processing. Propensity score matching is a technique commonly used in observational studies to reduce potential bias resulting from differences on relevant characteristics between control and treated groups (Rosenbaum & Rubin, 1983). Matching is completed to identify control and treatment participants who have a better balance on a range of relevant characteristics. Propensity scores were modeled with logistic regression with the dependent variable being the odds of belonging to the postimplementation group. For a few variables with considerable missing data, (e.g., history of child welfare involvement) missing data were coded into a separate category. Matching was conducted using macro codes developed by Parson (2004) and Coca-Perraillon (2006) using a nearest available neighbor (with no replacement) matching procedure in SAS version 9.2 (SAS, 2011). In three sites, a complete matching on all the variables would have eliminated too many subjects (see supplementary materials). The one to three variables that remained significantly different were included as covariates in analyses where appropriate.

Researchers used regression to compare the matched pre- and postimplementation groups. Hierarchical logistic regressions were used with dichotomous dependent variables (e.g., disposition, placement status) to determine whether there was a significant change in rates after implementation of a RNA. Every hierarchical regression model entered group membership (pre- vs. postimplementation) at the last step after factoring out significant covariates at the first step (if applicable). Cox proportional-hazards regression was used to compare differences in the time to reoffending between groups because it permits inclusion of *censored cases* (in this context, those who had not yet offended) while comparing groups in their time to recidivism. Covariates were included in many of the analyses for the three sites where a few variables remained significantly different between the pre- and postimplementation groups after propensity-score matching. Covariates were only included if there were significant correlations between the variable and the specific dependent variable.[2] When covariates were included, logistic regressions were supplemented with generalized linear modeling (GLM) to derive the groups' marginal means after taking covariates into account.

Results

Adherence to the Administration Policies

Before examining the impact of RNA implementation, it was first necessary to check whether the tools were administered in accordance with office policies. Per policy, JPOs were to administer the RNA before disposition and postdisposition when it could not be administered before. Every youth should have received a

[2] Analyses were conducted both with and without including these covariates. Inclusion of the covariates did not affect the statistical significance of the results but did reduce the strength of some of the effects. Covariates were retained in the models to take the most conservative approach.

RNA at some point unless the adjudication occurred very quickly and she or he received only a minor sanction. As reflected in Table 2, adherence to the administration timing was strong in four sites, three of which administered the RNA in 90% or more of their cases, and one where the rate was a little lower (84%, *YLS/CMI Site 1*) because many youth were warned and released (minor sanction) without receiving a full intake. Adherence was only fair in *SAVRY Site 2* (84%) and poor in *YLS/CMI Site 3* (41.6%). The majority of youth in *YLS/CMI Sites 1 and 2* received the RNA before disposition at intake. The SAVRY sites varied in their ability to complete the SAVRY before disposition. Because the SAVRY was implemented postadjudication, JPOs were dependent on judges delaying their disposition hearings for the SAVRY to be completed predisposition.

The lower adherence in a couple sites would likely differentially affect the ability for the RNAs to influence case processing, which further justified the need to examine results at each site separately. Adherence serves as a benchmark for implementation quality, and therefore, sites with strong adherence are indicated in bold in tables displaying prepost comparisons.

Risk Levels and Predictive Validity

Table 3 provides the risk levels of youth in the postimplementation sample who received a RNA. Across sites in both states, there was a relatively low proportion of high-risk youth, with only 13% in LA and 6% in PA. Sites varied in the proportion of youth who were at low or moderate risk. Overall proportions of youth at each risk level differed between states, which would be expected because the system should see a greater percentage of low-risk youth among preadjudication samples (PA) than among postadjudication samples (LA).

Predictive validity for the SAVRY was tested using 383 youth from the postimplementation sample (excludes youth with no SAVRY and no opportunity to reoffend). The average time at-risk was 18.1 months (SD = 3.09). Cox regressions indicated the SRR was significantly associated with all types of new petitions: any (β = 0.45, SE = .12, Exp(B) = 1.56 [confidence interval, CI = 1.25, 1.96], $p < .001$), nonviolent (β = 0.37, SE = .13, Exp(B) = 1.45 [CI = 1.13, 1.87], p = .004), violent (β = 0.66, SE = .19, Exp(B) = 1.94 [CI = 1.34, 2.81], $p < .001$), and violations (β = 0.48, SE = .18, Exp(B) = 1.62 [CI = 1.14, 2.30], p = .007). Predictive validity for the YLS/CMI was tested using the 359 youth from the postimplementation sample who received a YLS/CMI and had an opportunity to reoffend.[3] The average time-at-risk was a median 16.7 months (SD = 4.32 months). Cox regression indicated the YLS/CMI Total Score was significantly associated with petitions for any (β = 0.07, SE = .01, Exp(B) = 1.08 [CI = 1.05, 1.10], $p = < .001$), nonviolent (β = 0.06, SE = .02, Exp(B) = 1.06 [CI = 1.03, 1.09], $p < .001$), and violation (β = 0.13, SE = .03, Exp(B) = 1.14 [CI = 1.07, 1.22], $p < .001$) offenses. The YLS/CMI was not significantly associated with violent petitions (β = 0.05, SE = .03, Exp(B) = 1.05 [CI = .99, 1.11], p = .07) but base rates were very low (5 to 8%).

Did Implementation Affect Disposition Decisions?

We expected the use of more restrictive dispositions to decrease after implementation and that disposition decisions would be positively related to risk level. After propensity-score matching, as anticipated, there was a significant reduction in the restrictiveness of dispositions after the RNA was implemented in four of the six sites (*SAVRY Sites 1 and 3* and *YLS/CMI Sites 1 and 2*; see Table 4). In *SAVRY Site 1,* youth were significantly more likely to receive a probation disposition (β = 0.99, SE = 0.25, Exp(B) = 2.69 [CI = 1.65, 4.35], $p < .001$). There was a concomitant significant decrease in the use of detention (β = −0.95, SE = 0.31, Exp(B) = 0.39 [CI = .21, .71], p = .002) and state commitment (β = −0.94, SE = 0.44, Exp(B) = 0.39 [CI = .17, .92], p = .03). Within the postimplementation group, the only disposition type that was significantly related to risk level was state commitment (total n = 8), wherein low-risk youth (12.5%) had a lower likelihood than moderate (25.0%) or high risk youth (35.5%) of being committed; V = .18 [CI = .05, .39], p = .039. The majority of youth who received probation (n = 180; 33.3% low, 43.3% moderate, and 12.8% high risk) or detention (n = 22; 31.8% low, 59.1% moderate, and 9.1% high) were moderate risk.

In *SAVRY Site 3*, the only significant change was an increase in informal processing after SAVRY implementation (see Table 4). In both groups, most youth received probation (β = −0.63, SE = 0.35, Exp(B) = 0.53 [CI = .27, 1.05], p = .07), few received detention and only zero or one youth were committed to the state. Dispositions were not significantly related to risk in the postimplementation group but were in the expected direction for youth placed only on probation (low = 35.2%, moderate = 54.5%, high = 10.2%; V = .17 [CI = .04, .39], p = .19) versus those sent to detention (moderate = 50%, high = 37.5%; V = .21 [CI = .06, .47], p = .08). Surprisingly, the majority of youth handled informally were moderate risk (60%, 33.3% low).

In *YLS/CMI Site 1*, the only significant change was youth were more likely to receive an informal or minor disposition (β = 0.57, SE = 0.21, Exp(B) = 1.76 [CI = 1.16, 2.68], p = .01). Most dispositions were significantly related to risk, with the exception of consent decree. The majority of youth handled informally were low risk (64%; V = .35 [CI = .26, .48], $p < .001$), probation youth were mostly moderate (37%) or low (33%; V = .26 [CI = .14, .40], p = .01), and placement youth were mostly moderate (58%); V = .23 [CI = .11, .38], p = .007.

In *YLS/CMI Site 2*, there was a significant decrease in the use of probation postimplementation (β = −1.61, SE = 0.66, Exp(B) = 0.20 [CI = .06, .73], p = .01). There was a concomitant increase in the use of consent decree but the difference was not significant; β = 0.64, SE = 0.44, Exp(B) = 1.90 [CI = .81, 4.50], p = .14. Placement dispositions were rare overall. In the postimplementation group, dispositions followed an expected pattern related to risk. However, the only disposition significantly related to risk was whether youth received a placement (V = .36 [CI = .08, .69], p = .001).

In one site, dispositions became more restrictive. In *SAVRY Site 2,* there was a significant decrease in the use of probation

[3] Seventeen youth with a SAVRY were excluded from the predictive validity analyses; 12 because they were in a placement for the whole period and five because they reoffended before their first SAVRY. Forty-four youth with a YLS/CMI were excluded from the analysis, 16 because they reoffended before their YLS/CMI, and 28 because their cases had been expunged.

Table 2
Adherence to Risk Assessment Administration Policies

Site	*n*	RNA completed	RNA completed at intake or predisposition	RNA completed postdisposition	Adherence quality
SAVRY					
Site 1	217	90.0%	24.4%	65.9%	Strong
Site 2	105	84.0%	60.0%	24.0%	Fair
Site 3	130	95.4%	50.0%	45.0%	Strong
Total	452	90.2%	40.0%	50.2%	
YLS/CMI					
Site 1	232	84.1%	42.2%	28.4%	Strong
Site 2	116	100.0%	86.0%	14.7%	Strong
Site 3	231	41.6%	.0%	41.6%	Poor
Total	579	67.9%.	34.0%	28.5%	

Note. The *n*s reflect the total postimplementation sample at all sites. All percentages were calculated using the *n* as the denominator (percent of total cases). Although *SAVRY Site 2* and *YLS/CMI Site 1* had the same percentage of youth with a risk assessment completed, the adherence in *YLS/CMI Site 1* is indicated as strong because many of these youth were warned and released and would not have been expected to receive a Youth Level of Service/Case Management Inventory (YLS/CMI). SAVRY = Structured Assessment of Violence Risk in Youth.

as the most restrictive disposition ($\beta = -1.37$, $SE = 0.53$, Exp(B) = 0.25 [CI = .09, .72], $p = .01$), but this was coupled with a trend toward a greater but nonsignificant use of detention ($\beta = 0.86$, $SE = 0.56$, Exp(B) = 2.36 [CI = .79, 7.10], $p = .13$) and a few youth being committed to the state (see Table 4). In the postimplementation group, disposition decisions were significantly related to risk, with most youth who received only probation being low risk (55.8%); V = .39 [CI = .29, .57], $p = .001$. Among those sent to detention, most (50%) were moderate risk (V = .30 [CI = .18, .51], $p = .02$.) but only six of the youth received a SAVRY before their disposition decision. The few youth committed to the state were moderate or high risk.

One site, *YLS/CMI Site 3*, had no significant differences in dispositions after implementation and this site had the highest rates of placement dispositions (around 20%). In the postimplementation group, dispositions were unrelated to risk level. Youth placed on consent decree were as likely to be low risk (50%) as moderate risk (47.4%), for example. The relation between placement dispositions and risk could not be tested because only one of these youth had a YLS/CMI at the time of disposition.

Table 3
Categorical Risk Levels By Site (Postimplementation)

Site	*n*	Low	Moderate	High	Very high
SAVRY					
Site 1	196	33.2%	43.8%	12.9%	—[a]
Site 2	88	56.0%	31.0%	14.0%	—
Site 3	124	31.9%	55.2%	12.9%	—
Total	408	38.7%	45.6%	13.4%	—
YLS/CMI					
Site 1	194	54.9%	30.6%	5.2%	0
Site 2	116	36.2%	56.0%	7.8%	0
Site 3	96	40.6%	55.2%	4.2%	0
Total	406	46.3%	46.1%	6.4%	0

Note. *n*s reported are the number of cases in the postimplementation group with completed risk assessments. SAVRY = Structured Assessment of Violence Risk in Youth; YLS/CMI = Youth Level of Service/Case Management Inventory.
[a] The Very High risk category is blank for the SAVRY sites because the assessment does not have this risk category.

Did Implementation Affect Placement Decisions?

We expected placement rates would decrease after RNA implementation, either immediately after disposition or over the course of the case management period, and would be significantly related to risk at both time points. Contrary to hypotheses, changes in placement rates after implementation of a RNA varied by site, with significant decreases in two sites, some increases in two, and no change in two (see Table 5). The average length of time spent in an out-of-home placement was not significantly different after implementation in any site, and ranged from 99.37 to 160.42 days in both the pre- and postimplementation samples.[4] Placement rates were significantly related to risk in most sites (see Table 5).

The two sites with significant decreases in placement rates postimplementation were *SAVRY Sites 1* and *3*. In *SAVRY Site 1*, there were significant decreases both immediately after disposition and over the entire case management follow-up period. Furthermore, this was the only site where high-risk youth spent significantly more time in placements, on average (*Mdn* = 182 days), than low-risk youth (*Mdn* = 61 days); $Z = -2.25$, $p = .02$. In *SAVRY Site 3*, there also was a large reduction in placement rates after implementation over the case management follow-up period, but placement rates immediately after disposition did not change. However, these rates were relatively low. In the postimplementation group in *SAVRY Site 1*, receiving a placement immediately after disposition was not related to risk but whether youth received a placement at any point during the

[4] Analysis of covariances (ANCOVAs) were used to compare lengths of time in placement between the preimplementation and postimplementation groups in each site after factoring out covariates. Results are available from the authors upon request.

Table 4
Percentages of Youth at the Most Restrictive Dispositions Pre- and Postimplementation

	Informal/minor		Probation		Detention		State commit	
Site	Pre	Post	Pre	Post	Pre	Post	Pre	Post
SAVRY								
Site 1[a]	—	—	67% (.03)	85% (.03)***	20% (.03)	8% (.02)**	10% (.02)	4% (.01)*
Site 2	—	—	95%	82%**	5%	12%	0%	4.3%
Site 3	0%	12.8%**	86.2%	76.9%	12.9%	8.5%	.9%	0%
	Informal/minor		Consent decree		Probation		Detention/placement	
YLS/CMI								
Site 1[b]	34% (.04)	44% (.03)**	17% (.03)	13% (.02)	40% (.04)	34% (.03)	9% (.02)	9% (.02)
Site 2[a]	1.4%	6.8%	81% (.04)	90% (.03)	13% (.03)	3% (.02)**	3% (.02)	3% (.02)
Site 3	—	—	35.2%	35.2%	42.6%	48.1%	22.2%	16.7%

Note. Sites in bold were those with strong adherence to the administration policy. Significance testing was conducted using logistic regression for each disposition after propensity matching and including covariates where applicable. Cells represent the marginal means and standard errors produced from GLM in cases where covariates were included and represent the observed percentage of cases when no covariates were included. SAVRY = Structured Assessment of Violence Risk in Youth; YLS/CMI = Youth Level of Service/Case Management Inventory.
[a] The covariate was number of prior charges. [b] The covariate was good versus poor school attendance.
* $p < .05$. ** $p < .01$. *** $p < .001$.

study period was (see Table 5); V = .26 [CI = .14, .40], p = .001. In *SAVRY Site 3*, placement decisions were significantly related to risk at both time points (V = .27 [CI = .07, .52], p = .02, and V = .25 [CI = .08, .45], p = .04, respectively).

In both low placement sites, *SAVRY Site 2* and *YLS/CMI Site 2*, there were increases in placement rates at different time points after implementation. In *SAVRY Site 2*, there was an apparent but nonsignificant trend toward more youth being placed, primarily in detention, after implementation (12 vs. 22.8%, respectively). There was little difference between groups over the case management period; however, the rates postimplementation were relatively high (42.4%). The opposite was true in *YLS/CMI Site 2* where too few youth received a placement at disposition to conduct analyses (pre n = 2 and post n = 6), but there was a significant increase in placement over the case management period whereby youth in the post-implementation group were 5.31 times more likely to be placed. In *SAVRY Site 2*, risk level was significantly related to placement decisions, regardless of whether placement occurred at disposition (V = .26 [CI = .09, .49], p = .05) or later (V = .52 [CI = .34, .70], $p < .001$); however, a relatively high percentage of moderate-risk youth were placed overall (70%). In *YLS/CMI Site 2*, placements over the case management period were related to risk (V = .38 [CI = .24, .54], $p < .001$).

In the remaining two sites (*YLS/CMI Site 1* and *YLS/CMI Site 3*) there was no change in placement rates at either time period. In *YLS/CMI Site 1*, placement decisions were related to risk both immediately after disposition (V = .35 [CI = .18, .53], $p < .001$) and over the case management period (V = .53 [CI = .36, .66], $p < .001$). Conversely, in *YLS/CMI Site 3*, whether youth spent any time in placement was not significantly related to risk (V = 0.22 [CI = .07, .42], p = .11) and too few youth who received a placement at disposition were administered a YLS/CMI to conduct analyses. Placement rates in this site were the highest of all sites (see Table 5).

Did Implementation Affect the Level of Community Supervision?

We expected use of higher supervision levels would significantly decrease overall, and assignment of supervision levels would be related to risk. As anticipated, supervision levels reduced significantly in a manner that was fairly consistent across sites after implementation, but there was one outlier (see Table 6). Before implementation, in most offices youth were placed on a medium to high level of supervision at the beginning of probation per policy. The only exception was *SAVRY Site 1*, which had been individualizing supervision level based on use of a nonvalidated risk tool. In four of the five sites where supervision level could be tested (excludes *YLS/CMI Site 2* where there were data gathering constraints), supervision levels decreased significantly but differed in the amount of change that occurred. For each of these sites, youth who started probation on low levels of supervision appeared to remain at this level rather than be increased to more restrictive levels later (e.g., as a result of noncompliance). *YLS/CMI Site 3* was the only site where supervision levels became significantly more restrictive.

Supervision level was significantly related to risk level in the expected direction in all sites that experienced a decrease in supervision (*SAVRY Site 1*: V = .87 [CI = .80, .94], p = .001; *SAVRY Site 2*: V = 0.35 [CI = .19, .55], p = .001; *SAVRY Site 3*: V = .44 [CI = .23, .68], $p < .001$; *YLS/CMI Site 1*: V = .36 [CI = .28, .47], $p < .001$). For example, in *SAVRY Site 1*, high-risk youth (77.8%) were more likely than low-risk youth (0%) to be placed at the maximum level, and less likely to be placed at the minimum level (3.2 vs. 94.4%, respectively). The majority of youth assigned to the medium level of supervision were moderate-risk (91.9%). Some sites had more deviation from risk level in the assignment of supervision level than others. In *SAVRY Site 2*, for example, moderate risk youth were placed on either minimum/nonreporting (47.6%) or medium

Table 5
Placement Rates Pre- and Postimplementation Immediately After Disposition and Over the Case Management Follow-Up Period

	Placement immediately after disposition			Placement over case management period		
Site	Preimplementation rate	Postimplementation rate	β(*SE*); Exp(B), 95% CI	preimplementation rate	Postimplementation rate	β(*SE*); Exp(B), 95% CI
SAVRY						
Site 1[a]	33% (.03)	15% (.03)	−.98 (.25); .37 [.23–.61]***	46% (.04)	33% (.03)	−.51 (.21); .60 [.40–.91]**
Site 2	12%	22.8%	.78 (.40); 2.18 [.98–4.83]	38%	42.4%	.18 (.30); 1.20 [.66–2.16]
Site 3	14.5%	10.8%	−.34 (.40); .71 [.32–1.57]	47%	30.6%	−.70 (.28); .50 [.29–.88]**
YLS/CMI						
Site 1[b]	12% (.02)	15% (.03)	.07 (.31); 1.08 [.59–1.96]	19% (.03)	19% (.03)	−.22 (.28); .80 [.47–1.37]
Site 2[c]	2% (.01)	6% (.02)	—	8% (.03)	21% (.04)	1.67 (.54); 5.31 [1.84–15.29]**
Site 3	24.1%	19.4%	−.27(.33); .76 [.40–1.46]	46.3%	49.1%	.11 (.27); 1.12 [.66–1.91]
Relation to risk	Low	Moderate	High	Low	Moderate	High
SAVRY						
Site 1	25.0%	55.6%	19.4%	22.2%	35.8%	60.7%***
Site 2	14.3%	33.3%	41.7%*	20.0%	70.0%	75.0%***
Site 3	5.7%	10.0%	33.3%*	22.9%	31.9%	60.0%*
YLS/CMI						
Site 1	7.0%	20.0%	58.0%***	8.4%	22.5%	100.0%***
Site 2[c]	—	—	—	2.4%	25.0%	55.60%***
Site 3[d]	—	—	—	23.1%	43.4%	50.0%

Note. Sites in bold were those with strong adherence to the administration policy. Placement rates reported for sites that included covariates are the marginal means (SE) after comparing propensity-matched groups using generalized linear modeling (GLM). Percentages for risk levels are the percentage of youth at each level of risk who received a placement during the respective time period (e.g., 60.7% of all high-risk youth at *SAVRY Site 1* were placed at some point during probation). CI = confidence interval; SAVRY = Structured Assessment of Violence Risk in Youth; YLS/CMI = Youth Level of Service/Case Management Inventory.
[a] Covariates included for this site were number of prior charges. [b] Covariates for this site were good versus poor school attendance. [c] Covariates included for this site were number of prior charges and history of outpatient substance abuse treatment. There were too few cases placed immediately after disposition in this site to compare rates or risk levels. [d] The first risk analysis could not be conducted for this site because only two cases with a placement immediately following disposition had received a YLS/CMI.
* $p < .05$. ** $p < .01$. *** $p < .001$.

(42.9%) levels of supervision. In *SAVRY Site 3* most low-risk youth were placed on a medium supervision level (72.7%) because the minimum level was rarely used. In *YLS/CMI Site 3* where supervision significantly increased, supervision level was unrelated to risk level.

Did Implementation Affect the Rates of Service Referrals?

We expected the number of service referrals received for each youth during his or her period of supervision would be significantly related to risk level. This was the case in four sites. For example, in *SAVRY Site 1* the average number of service referrals was 1.67 ($SD = 1.00$) for low-risk, 1.87 ($SD = 0.98$) for moderate-risk, and 2.36 ($SD = 1.10$) for high-risk youth; $F(2, 187) = 4.72$, $p = .01$, $\eta^2 = .05$. This pattern was consistent for *SAVRY Site 3* ($F(2, 86) = 4.48$, $p = .01$, $\eta^2 = 09$), *YLS/CMI Site 1* ($F(2, 132) = 5.29$, $p = .006$, $\eta^2 = .07$) and *YLS/CMI Site 2* ($F(2, 107) = 6.02$, $p = .003$, $\eta^2 = .10$). The risk principle was not followed in two sites. In *SAVRY Site 2*, youth at all risk levels received more than two services, on average, but variability was relatively high ($F(2, 90) = 0.65$, $p = .52$, $\eta^2 = .01$). In *YLS/CMI Site 3*, low risk ($M = 1.59$, $SD = 1.16$) and moderate risk youth ($M = 1.92$, $SD = 1.19$) received about the same number of services while high risk youth were more variable ($M = 2.5$, $SD = 2.38$); $F(2, 93) = 1.47$, $p = .26$, $\eta^2 = .03$.

Did Implementation Affect Recidivism?

We hypothesized that recidivism would not significantly increase after implementation. In most sites, reoffense rates and length of time to commission of a new offense did not change significantly. This was the case for all categories of reoffending regardless of whether the outcome of interest was new petitions or adjudications (see supplementary materials). The rates of any new petitions varied widely across sites from 28 to 52% pre- and 18 to 60% postimplementation. Rates of new adjudications ranged from 14 to 43% pre- and 13% to 51% postimplementation.

There were significant differences in reoffense rates in some offense categories in two sites. In *SAVRY Site 1*, there were no significant differences between the pre- and postimplementation groups with respect to new petitions. Conversely, there were significantly more new adjudications in the postimplementation group for any reoffending (28 vs. 37%, respectively), nonviolent reoffending (15 vs. 23%, respectively), and violations (5 vs. 11%, respectively). Moreover, the time to adjudication was shorter among postimplementation youth for any ($\beta = .45$, $SE = .18$, Exp(B) = 1.57 [CI = 1.11, 2.23], $p = .01$), nonviolent ($\beta = .56$, $SE = .23$, Exp(B) = 1.75 [CI = 1.10, 2.77], $p = .02$), and violation ($\beta = .76$, $SE = .37$, Exp(B) = 2.14 [CI = 1.05, 4.40], $p = .04$) offenses.

In *YLS/CMI Site 1*, reoffending was essentially cut in half postimplementation (new petitions = 39 vs. 18%; new adjudications = 26 vs. 13%, respectively). The postimplementation group

Table 6
Supervision Levels Pre- and Postimplementation

Site	Nonreporting		Minimum		Moderate		Max/intensive		Cramér's V; 95% CI
	Pre	Post	Pre	Post	Pre	Post	Pre	Post	
SAVRY									
Site 1[a]	—	—	23.4%	39.7%	33.2%	47.2%	32.1%	12.1%	.35 [.28, .44]***
Site 2	1.0%	4.0%	36.6%	53.1%	27.8%	26.6%	34.4%	16.5%	.23 [.10, .38]**
Site 3[a]	—	—	1.0%	14.0%	76.4%	75.3%	22.7%	10.8%	.30 [.22, .40]***
YLS/CMI									
Site 1	51.7%	41.4%	1.0%	14.3%	4.9%	23.3%	42.4%	21.0%	.40 [.33, .47]***
Site 3[a]	—	—	.0%	.0%	95.8%	87.0%	4.2%	13.0%	.16 [.02, .28]*

Note. Sites in bold were those with strong adherence to the administration policy. Cramér's V values tested the association between the pre- versus postimplementation groups and the initial supervision levels. CI = confidence interval; SAVRY = Structured Assessment of Violence Risk in Youth; YLS/CMI = Youth Level of Service/Case Management Inventory.
[a] Cells are blank for sites that did not have a nonreporting level of supervision.
* $p < .05$. ** $p < .01$. *** $p < .001$.

significantly differed from the preimplementation group in all categories of new petitions [any: $\beta = -.84$, $SE = .20$, Exp(B) = 0.43 [CI = .29, .64], $p < .001$; violent: $\beta = -.71$, $SE = .37$, Exp(B) = 0.49 [CI = .24, 1.02], $p = .05$; nonviolent: $\beta = -0.74$, $SE = .23$, Exp(B) = 0.48 [CI = .30, .75], $p = .001$; violations: $\beta = -0.87$, $SE = .37$, Exp(B) = 0.42 [CI = .20, .87], $p = .02$). New adjudications decreased for any ($\beta = -.74$, $SE = .23$, Exp(B) = 0.48 [CI = .31, .75], $p = .001$) and nonviolent ($\beta = -0.90$, $SE = .26$, Exp(B) = 0.41 [CI = .24, .68], $p = .001$) reoffending. Adjudications for violent offenses and violations were low overall and no change was observed.

Discussion

To our knowledge, this is the first multisite study to investigate the influence of adopting risk assessment and RNR on several levels of case processing using a prepost design in multiple jurisdictions. A strength of this study was the ability to examine the generalizability of this influence across multiple jurisdictions and different risk assessment instruments while holding the initial implementation approach constant. Prior results from this study indicated JPOs conducted the YLS/CMI and the SAVRY reliably (Guy & Vincent, 2011; Vincent et al., 2011), most JPOs across sites had a positive attitude about use of a RNA (that is key for implementation quality; Haas & DeTardo-Bora, 2009) and reported using the RNAs in their decisions when they were able (Vincent, Paiva, et al., 2012). These previous findings, coupled with the current data indicating which sites had strong adherence to the RNA administration policies, enable us to draw stronger conclusions about the actual impact of implementing risk assessment with RNR on case processing in juvenile probation.

Our key findings were that implementation of a RNA had an impact on at least three areas of case processing in jurisdictions with strong adherence to the administration protocol, and that the nature and extent of the impact differed as a function of some baseline characteristics of the jurisdiction. For example, whether placement or incarceration rates increased, decreased, or did not change was dependent on the prior placement practices of the sites. Table 7 summarizes the major findings for each site and illustrates that the hypotheses were generally supported for the four sites with strong adherence. There was no indication that impact differed as a function of the particular RNA used. Youths' risk levels, as identified by the SAVRY or the YLS/CMI, were used in most areas of decision-making (e.g., disposition, service referrals, placements, and supervision) in most sites.

Case management decisions that were not at least partially guided by risk indicate problems in the implementation procedures. For example, in *SAVRY Site 2*, which had relatively weaker adherence to the administration policies, service allocation was not related to youths' risk levels and there was a shift toward greater use of detention at disposition. Detention placements were related to risk but many of these decisions were made before a SAVRY assessment was conducted and this site appeared to place a disproportionate number of moderate risk youth out-of-home, relative to the other sites. The site with the poorest adherence, *YLS/CMI Site 3* (only 41%), did not experience any changes after implementation aside from an increase in use of maximum levels of supervision, which did not follow the risk principle. Even though the researchers followed a standardized implementation protocol with each site, there were some qualitative differences that can account for the poor adherence quality at *YLS/CMI Site 3*; namely, the absence of judge buy-in. In this site, JPOs were unable to conduct any YLS/CMIs before disposition and the judges made all placement, service, and supervision decisions at disposition. Consequently, it appears none of the decisions followed the risk principle or were influenced by the YLS/CMI. Moreover, this site had the highest rate (49%) of youth placed in facilities. Results for the remaining sites are discussed in more detail.

Did Risk Assessment Influence Disposition Decisions?

There was a significant shift toward less restrictive dispositions in four of the five sites. Risk level was associated with at least some, if not all, disposition decisions in each of these sites, indicating the risk principle was followed. The only site where the risk principle did not influence disposition was *SAVRY Site 3* where the shift was only in informal processing, which was decided before a RNA was conducted. *SAVRY Site 2* was the only site where the restrictiveness of dispositions appeared to increase after implementation of the RNA but it was not significant. Qualitative

Table 7
Summary of Changes Observed Between Pre- and Postimplementation Groups on Outcome Variables

Site	Most restrictive disposition[a]	Placement rates across probation[b]	Supervision level[c]	Number of service referrals[d]	Recidivism rates (new petitions)[e]	Case management variables associated with risk
SAVRY						
Site 1	**Reduction in severity**	**Reduction**	**Reduction**	**Related to risk**	**No change**	State commitment dispositions, placement rates, supervision
Site 2	Nonsignificant increase	No change	**Reduction**	Unrelated	**No change**	All dispositions, placement rates, supervision
Site 3	**Reduction in severity**	**Reduction**	**Reduction**	**Related to risk**	**No change**	Placement rates, supervision
YLS/CMI						
Site 1	**Reduction in severity**	No change	**Reduction**	**Related to risk**	Reduction	All dispositions except consent decree, placement rates, supervision
Site 2	**Reduction in severity**	Increase in detention	Not tested	**Related to risk**	**No change**	Placement-related dispositions, placement rates
Site 3	No change	No change	Increase	Unrelated	**No change**	None

Note. Bold indicates change was in hypothesized direction.
[a] Hypothesized there would be a reduction in use of more restrictive dispositions. [b] Hypothesized there would be a reduction in use of placement across the course of probation. [c] Hypothesized there would be a reduction in use of higher/maximum levels of supervision. [d] Hypothesized the number of service referrals would be positively related to risk level. [e] Hypothesized there would be no change in recidivism.

interviews with administrators indicated the increase in detention could be attributed to the implementation of a detention risk assessment tool, which had not been validated, adding credence to the notion that it is important to validate tools.

Did Risk Assessment Influence Out-of-Home Placement Rates?

The impact of implementation of a RNA on rates of out-of-home placement was apparent in more sites over the course of youths' probation than at the time of disposition. It was crucial to examine placement rates over the course of probation because, as is evident from the data in Table 5, most placements in juvenile justice occur later during probation. As hypothesized, the risk principle influenced placement decisions in all five sites. On a positive note, most sites placed only 50 to 75% of their high-risk youth, suggesting the RNA and RNR training was effective in communicating that many of these youth could be managed safely in the community.

A crucial takeaway is that the direction of the impact of the RNA differed as a function of each site's placement rates before the RNA was used. The two strong implementation sites with a placement rate over 45% cut these rates such that youth had about half the odds of being placed. The one site with a placement rate of only 19% had no change but risk influenced the placement decision. The one site (*YLS/CMI Site 2*) with an unusually low placement rate experienced a large increase (from 8 to 21%). However, in absolute terms, very few youth were placed (8 before and 21 after implementation) and the decisions followed the risk principle. *SAVRY Site 2* did not decrease their placement rates, which was likely a result of the lower implementation quality and use of a nonvalidated detention risk tool after probation violations. An important implication is that implementation of the risk principle should lead to decreases in placement rates unless the existing rates are approximately 20%, which is around the national average for youth detained before disposition (Sickmund & Puzzanchera, 2014).

Did Risk Assessment Influence Levels of Community Supervision?

The most consistent area of impact of implementation of a RNA was on level of probation supervision. In every site at which supervision level could be tested (with the exception of *YLS/CMI Site 3*) there were significant decreases in the use of maximum and moderate levels of supervision, and increases in the use of minimum levels of supervision. Similar to findings by Luong and Wormith (2011), supervision level was strongly guided by risk level. This is likely the easiest area of case management in which to implement the risk principle because guidance can be written into probation policy clearly and decisions about supervision level are usually under the control of JPOs. However, some sites still followed the principle more strictly than others. In both *YLS/CMI Site 1* and *SAVRY Site 2*, for example, 30 to 40% of youth on a medium level of supervision were low-risk. Some discretion in setting supervision level is always necessary to address the nature of the youths' offense or responsivity factors; however, probation offices should consider setting an upper limit as to how often deviations are permitted and require clear justification for deviations. Supervision level is more important for resource allocation than for recidivism reduction, as the sheer number of probation contacts has little association with reoffending (Wagoner, Schubert, & Mulvey, 2015).

Did Risk Assessment Influence Service Allocation?

Most sites followed the risk principle in their service allocation such that high-risk youth on average received one to three more services than low-risk youth. In general, when high-risk offenders are given more service referrals than low-risk offenders, larger

reductions in reoffending are observed (Lowenkamp, Pealer, Smith, & Latessa, 2006). Similar to our findings for rates of placement, whether overall service allocation increased or decreased varied as a function of the site's case management practices before implementation of the RNA. One site had a significant increase, two had significant reductions, and two had no change in the average number of services received by all youth on probation. *SAVRY Site 2* was the only site where the RNA did not appear to influence service allocation, indicating the supervisory oversight of JPOs' case management plans was not as strong in this site.

Did Implementation of Risk Assessment Influence Recidivism?

Consistent with the hypotheses, in most sites rates of new petitions did not change. There was a significant increase in adjudications in *SAVRY Site 1*. Qualitative interviews with administrators indicated there were changes in leadership in the prosecutor's office over the study period, which resulted in a "tougher on crime" philosophy and more youth being handled formally. The lack of increased rates of petitions at this site argues against the notion that youth were actually committing more crime postimplementation.

The stability in recidivism rates after implementation of a valid RNA and RNR approach may be a surprise and a disappointment. After all, the primary benefit of the RNR approach has been touted as recidivism reduction. However, most studies that have reported RNR leads to reductions in recidivism have demonstrated this at the macro level for services that address criminogenic needs (Dowden & Andrews, 1999; Romani, Morgan, Gross, & McDonald, 2012), for young offenders with strong service-to-need matching (Luong & Wormith, 2011; Peterson-Badali et al., 2015; Vieira et al., 2009), or in comparisons between POs with and without intensive training in RNR-related case management (Bonta et al., 2013, 2011). The present study differed in that it examined whether implementation of a valid RNA with RNR-related policies led to reductions in reoffending within a jurisdiction as a whole.

There are a few potential explanations for the lack of overall reduction in recidivism rates. First, the study did not examine the quality of implementation of the need principle. There is no question that risk reduction is going to be tied, at least in part, to the quality of the services received and whether services were targeted to youths' criminogenic needs. Although JPOs received training on service-to-need matching and adopted a new RNR-based case plan system, we did not examine how well services were matched for individual youths. A second explanation comes from examination of *YLS/CMI Site 1*, where recidivism rates were halved. This site had strong implementation quality, with all their case processing decisions significantly tied to risk. This site also had the highest percentage of low-risk youth. Perhaps doing a better job of not overintervening with these youth led to the dramatic reduction in recidivism. A recent study of risk assessment practices in Texas also found there was no reduction in reoffending associated with use of a risk tool, in part because low-risk youth continued to receive many services, ostensibly resulting in a higher reoffense rate (Fabelo, Arrigona, Thompson, Clemens, & Marchbanks, 2015). A third explanation is that it that may require a longer duration of implementation for an impact on recidivism to be realized (see Flores et al., 2006).

Implications for Juvenile Justice Agencies

Despite the reduction in reoffending in most sites, a major implication of this study is that quality implementation of risk assessment and RNR will conserve resources and serve more justice-involved youth in the community without an increased risk to public safety. It is highly likely this process also results in cost savings in light of the potential decreases in placement rates, increases in informal processing, and decreases in intensity of supervision. The cost-effectiveness of implementation of a RNA and RNR is an area in need of further study. Moreover, serving more youth in the community may increase the likelihood of them completing school, thereby leading to proximal gains (e.g., better education outcomes).

Another implication of this work is that agencies must implement the RNA well to reap its benefits and avoid losses of time and other resources. Adopting a RNA costs money. There are multiple changes to policies and electronic case management systems, staff training requirements, and the time investment for staff conducting assessments. Adoption of a RNA for case planning makes absolutely no difference in jurisdictions where judges do not buy into the process and make all of the case management decisions at disposition. Buy-in is most likely to be obtained by providing judges with a brief training on the implications of adopting a RNA and the research on RNR before implementation. Although it was not measured explicitly in this study, lack of quality assurance and supervisory oversight of JPOs using RNAs and RNR also may contribute to poor outcomes. It is conceivable that implementation effects would have been better in *SAVRY Site 2*, for example, had supervisors checked the RNA administration adherence and JPOs' case plans routinely. We strongly recommend agencies obtain buy-in from judges and attorneys before implementation of a RNA and institute a routine process of supervisory oversight and quality assurance procedures, which are crucial for compliance with these instruments in JPOs' decision-making (Andrews, 2006; Miller & Maloney, 2013).

A final implication is that the actual RNA instrument used should not matter as long as the tool is being completed reliably by staff and has been demonstrated to be a valid predictor of delinquent behavior for the type of population and setting where it is being used. The only difference between the four probation offices with strong implementation quality related to the effect on placement rates, which was a function of differences in their initial placement practices and not of the particular RNA used. Debates regarding which risk assessment tool is "best" are not meaningful as long as the instrument is feasible, can be completed reliably in the field, includes dynamic risk factors to guide case planning, and has strong evidence of its predictive validity in multiple jurisdictions by independent parties (Vincent, Guy, & Grisso, 2012).

Limitations and Future Directions

The implications of this study should be considered in light of a few limitations. First, it would have been ideal to hold the case management follow-up period constant across sites. This was not possible because it took approximately 3 months longer for the PA sites than the LA sites to implement all of their procedures. This methodological issue did not appear to affect the results, as significant changes in case processing were observed in both states. Second, it also would have been ideal for *YLS/CMI Site 3* to have

had a longer delay in implementation than the other PA sites to reduce cohort effects. The research timeline was overridden by political pressures on administrators to implement a tool quickly. Both of these limitations are disadvantages of doing studies in the real world; however, the ecological validity of such designs arguably outweighs such disadvantages. Third, the study design at *YLS/CMI Site 3* was different from the other sites (i.e., comparison-treatment rather than prepost), and it was the only site in which no changes in case processing were observed. However, based on qualitative analyses of interviews with JPOs and administrators at this site (Vincent, Paiva, et al., 2012), it was clear the null findings were attributable to lack of judge buy-in and not the study design.

There are some limitations with prepost study designs, such as an inability to control for differences in data recording procedures (e.g., more extensive case plans were implemented in some sites after implementation) and overall shifts in philosophy between the study periods. However, given that there is so little research on this topic, the quasi-experimental design used here still provides useful information for the field. In fact, in light of the myriad differences between juvenile justice agencies that contribute to difficulty identifying well-matched control groups, this approach may be preferable. Nonetheless, a control-group study is a logical next step in research on this topic.

Researchers should examine the degree to which these changes can be sustained (or improved) over time. Good implementation of a new intervention can require 3 years, particularly before any benefits can be realized (Fixsen et al., 2005; Flores et al., 2006). Thus, the fact there were so many changes in case processing in such a short time period among the sites in this study should be taken as additional evidence for the importance of adopting RNR in juvenile justice agencies. Nevertheless, we stress that focusing on recidivism as the most important or even sole outcome variable of interest when studying RNA implementation could be detrimental. Future studies should examine other outcomes such as reduction in agencies' human and financial costs and improvement in youths' educational attainment or employment.

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