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Colorado Sex Offender Risk Scale (SORS): Nine year follow-up

Executive summary

This *Elements of Change* describes a recently completed study of the Colorado Sex Offender Management Board's Sex Offender Risk Scale (SORS). This risk assessment scale is one component in the identification of sexually violent predators (SVPs) in Colorado. Earlier studies of the Colorado SORS found that it statistically predicted treatment and/or supervision failure. The analysis described here involved a review of the arrest records of over 400 sex offenders from the original sample of probationers, prisoners in treatment, and community corrections offenders sentenced in 1997 and 1998. The current study found that the offenders categorized as high risk were indeed significantly more likely than the remainder of the offenders to be arrested for a violent crime within five years.

Background

In 1997, the Division of Criminal Justice (DCJ) began work to develop a method by which higher risk sex offenders could be delineated from less dangerous sex offenders. The Office of Research and Statistics (ORS) within DCJ worked with members of the Sex Offender Management Board (SOMB) and a research subcommittee to design and implement an actuarial risk assessment tool applicable to adult sex offenders serving sentences throughout the Colorado criminal justice system. This work became a component in the identification of SVPs in Colorado.

The Colorado Adult Sex Offender Risk Assessment Scale (SORS) was developed using a sample of Colorado probationers, parolees, and inmates.[1] The original outcome measures included rearrest and treatment/supervision failure at 12 and 30 months post-intake. The 10-item scale predicting treatment/supervision failure[2] was approved by the SOMB in December 1998 and implemented statewide on July 1, 1999, along with the Sexually Violent Predator (SVP) law (see box). Note that the sex offenders in the original sample were convicted before the SVP law went into effect, so none of the offenders in the sample were subject to community notification or other SVP-related mandates.[3] Most, however, were required to regularly register their residential address with local law enforcement.

> *In the mid-1990s, federal law mandated that each state develop a mechanism to identify "sexually violent predators." The Colorado General Assembly complied with the federal SVP mandate by enacting 18-3-414.5, C.R.S. The intent of this legislation is to identify convicted sex offenders who are at higher risk of committing subsequent sex crimes, and designate such offenders as SVPs. The law specifies that an adult found to be an SVP is required to register his or her residential address with local law enforcement every three months for the remainder of his or her life. Further, the offender is subject to community notification by the local law enforcement agency, and information describing the offender is placed on a website maintained by the Colorado Bureau of Investigation.*

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1   See English, K., Retzlaff, P. and Kleinsasser, D. (2002). The Colorado Sex Offender Risk Scale. *Journal of Child Sexual Abuse, 11*, 77-96.

2   Too few new arrests had occurred at 12 and 30 months to use arrests as the only outcome measure. Additionally, 46.4% of the sample was in prison and not at risk of arrest. They were, however, susceptible to treatment failure.

3   Community notification is defined by 16-13-901, C.R.S. which specifies that persons who are convicted of offenses involving unlawful sexual behavior and who are identified as SVPs pose a high enough level of risk to the community that persons in the community should receive notification concerning the identity of these SVPs. Additionally, recognizing the high potential for vigilantism, such notification should only occur in cases involving a high degree of risk to the community and should only occur under carefully controlled circumstances that include additional information and education to the community concerning supervision and treatment of sex offenders.

Ten factors that were found to statistically predict treatment or supervision failure were selected for use in the Colorado SORS. These factors included:

- A prior adult felony,
- A prior juvenile felony,
- Failed 1st or 2nd grade,
- Not employed,
- Victim intoxicated during crime,
- Not sexually aroused during crime,
- Used a weapon,
- Scoring 20 or above on the SOMB checklist denial subscale,
- Scoring 20 or above on SOMB checklist deviancy subscale, and
- Scoring 20 or below on SOMB checklist motivation subscale.

The majority of the original study sample has now had nine or more years at risk in the community. Therefore, new arrests are now a viable outcome measure against which the validity of the Colorado SORS can be assessed. This *Elements of Change* describes a recent study of the ability of this instrument to predict new criminal behavior as measured by arrest.

The original risk scale development sample included 494 adult male sex offenders who were on probation, on parole, in community corrections, or incarcerated (and in sex offender treatment at the Department of Corrections) between December 1996 and November 1997. Of the 494 offenders in the original study, 218 were on probation, 47 on parole, and 229 in prison. Approximately 30 of those on probation or parole were in a community corrections facility.

For the current recidivism analysis, the information available was inadequate to identify new arrests for 49 of the original 494 cases. In addition, 15 offenders were incarcerated continuously since the time of the original study. These cases were excluded from further analysis.

Figure 1. Colorado Sex Offender Risk Scale development sample: Original offense (n=494)
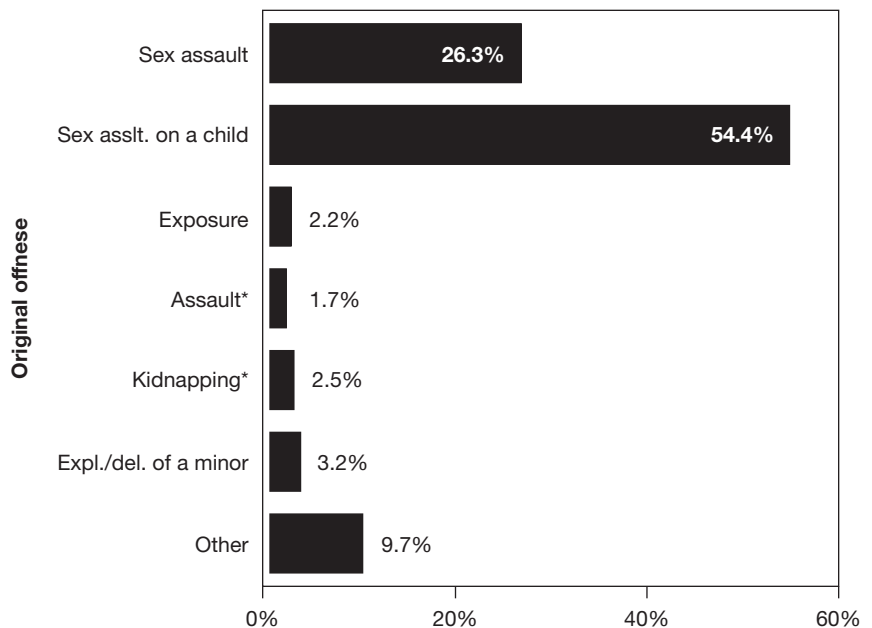
* Underlying factual basis of arrest included a sex crime.

Since state criminal justice records (not regional or national) were used to identify recidivism, additional efforts were made to identify the location and status of those who did not reappear in the criminal justice system. Half of these individuals were found to have recently been listed on the Colorado Sex Offender registry, verifying their residency in Colorado. The National Sex Offender Registry, the National Crime Information Center[4] and Accurint®[5] were used to search for the remainder of the offenders to determine their location and status. This effort ensures that offenders who are not identified in state arrest records are not automatically considered "nonrecidivists." Offenders who were not actually residing in Colorado, or who died with no time at risk, were removed from subsequent analysis, leaving a sample of 405.[6]

The Colorado Crime Information Center (CCIC) was employed to obtain data on new arrests. All offender identifiers available were applied in the identification of new arrests, including State Identification Numbers, (SID), Social Security and FBI numbers, names and dates of birth. Additionally, many offenders had multiple ID numbers, dates of birth, and aliases. All such alternative identifiers were also utilized to identify new arrests. **This method of using multiple identifiers resulted in the identification of 302 more arrests than were identified using only singular identifiers**.

Recidivism findings

In all, 226 offenders were arrested for recidivism crimes between 1997 and 2006. The proportion of the sample arrested each year following probation or treatment intake or after prison release are presented in Table 1 according to crime type. Failure to register as a sex offender, failure to appear in court, and technical violations are excluded as recidivism crimes.

Table 1. New misdemeanor or felony arrests at 1, 2, 3, 4 and 5 years

New arrest	Sex crime*		Violent crime**		Any crime***	
	N	%	N	%	N	%
New arrest 1 yr (n=403)	40	9.9%	9	2.2%	66	16.4%
New arrest 2 yr (n=401)	57	14.2%	15	3.7%	96	23.9%
New arrest 3 yr (n=395)	68	17.2%	26	6.6%	124	31.4%
New arrest 4 yr (n=383)	79	20.6%	40	10.4%	155	40.5%
New arrest 5 yr (n=371)	92	24.8%	47	12.7%	172	46.4%

*Sex crimes include sexual assault, incest, indecent exposure, enticement, exploitation, promoting obscenity, prostitution (there were 3 offenders with prostitution charges only).

**Violent crime includes homicide, aggravated and other assaults, robbery, kidnap, and weapons offenses.

***Any crime includes the above and any other misdemeanor and felony crimes reported to Colorado Crime Information Center (CCIC). Arrests for failure to register are excluded.

Note: Only those at risk in the community the requisite time are included. Therefore, the total number of cases is less than 405 for each of these measures.

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4   National arrest data are maintained by the FBI's National Crime Information Center (NCIC). Researchers used NCIC to look up individuals not found during the recidivism and other search efforts in order to verify location only.

5   Offender location and death information was obtained using a LexisNexis service called Accurint®. Accurint® is a widely accepted locate-and-research tool available to government and law enforcement.

6   Eleven were found on sex offender registries in other states. DOC release data, NCIC and Accurint® were used to identify another 8 who were residing out of state during the entire follow-up period, 2 who were deported and 3 who were deceased. One individual was simply lost from the sample.

After five years, 24.8 percent of this cohort had been arrested for a new sex crime. Almost half (46.4 percent) were eventually arrested on sex, violent, or other charges over the five years.

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After five years at risk, almost half (46.4 percent) of this cohort had been rearrested on sex, violent or other charges. Arrests for violent crimes were relatively rare, with a rate of 12.7 percent after 5 years. Almost a quarter, 24.8 percent, had been arrested for a new sex crime.

Sexual recidivism rates reported elsewhere vary widely. A meta-analysis of 61 studies conducted by Hanson and Bussier (1998) reported a sexual recidivism rate of 18.9 percent for rapists over 4 to 5 years. A more recent meta-analysis by Hanson and Morton-Bourgon (2007) reported an overall sexual recidivism rate of 12.4 percent. This analysis included 72 studies, with an average follow-up time of 5.7 years.

However, much higher sexual recidivism rates are not uncommon. Rice, Harris and Quinsey (1990) found that of 54 rapists who were released from prison, 28 percent were reconvicted of a sex offense after 4 years. These researchers also followed a group of child molesters for an average of six years, during which time 31 percent had a new conviction for a sexual offense (Rice, Quinsey & Harris, 1991).

Sturgeon and Taylor (1980) found reconviction rates between 25 and 30 percent for child molesters over 5 years, whereas Barbaree and Marshall (1988), using both official and unofficial measures of recidivism (reconviction, charges, or unofficial record), found 43 percent of a population of child molesters sexually reoffended over a 4 year period. The comparison of recidivism rates across studies is confounded by varied definitions of recidivism, participation in treatment, the duration of follow-up, and the population under examination.

The Washington State Institute for Public Policy reported on 89 high-risk sex offenders released from prison. These offenders were referred for a civil commitment, but were instead released to the community. After 6 years, 29 percent had been reconvicted of a new felony sex offense (Millroy, 2003). All of these findings are summarized in Table 2.

The relatively high rearrest rates found for the current study's sample are not unexpected, due to the extensive search for and elimination of offenders who had left the state, died, or were otherwise lost to follow-up. The use of arrest records rather than convictions as the outcome measure also results in higher recidivism rates. Prentky, Lee, Knight and Cerce, (1997) found that violent sexual recidivism rates increased by over 50 percent when charges were used as the outcome measure rather than convictions. Additionally, over half (52.2 percent) of the sample is comprised of former prison inmates, who usually generate higher recidivism rates in comparison to other criminal justice populations.

Finally, but of no small significance, is the implementation of the Colorado Sex Offender Management *Standards And Guidelines* for the containment of sex offenders in Colorado.[7] The Standards were mandated in 1996, so most of the offenders under examination in the current study were managed under the principles of the Containment Model.[8] The Containment Model is a very specific strategy for the treatment, supervision, monitoring and risk management of sex offenders and has been used statewide since 1996. Most of the offenders in this study sample were subject to this enhanced level of case management, which calls for the cooperation and collaboration of the criminal justice, treatment and polygraph communities. Offenders are closely monitored and participate in specialized treatment and regular polygraph examinations. The scrutiny of intensive case management combined with disclosures made during required polygraph examinations may result in the revelation of new sexual offenses, which in turn may result in new arrests.

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7   Colorado Sex Offender Management Standards And Guidelines For The Assessment, Evaluation, Treatment And Behavioral Monitoring Of Adult Sex Offenders. (June, 2004). Colorado Department of Public Safety, Division of Criminal Justice, Office of Domestic Violence & Sex Offender Management. Available at: http://dcj.state.co.us/odvsom/sex_offender/adults.html#standards

8   See English, K. (1998). The containment approach: An aggressive strategy for the community management of adult sex offenders. *Psychology, Public Policy, and Law*, 4 (1/2), 218-235. Also English, K. (2004). The containment approach to managing sex offenders. *Seton Hall Law Review*, 34, 1255-1272.

Table 2. Sexual recidivism studies: Summary of findings

Study	Time at risk	Definition of recidivism	Sexual recidivism rate	Comments
Colorado SORS (2008)	5 yrs	New arrest for a sex offense.	24.8%	Sample of 405 sex offenders released from prison or supervision in the community.
Hanson and Morton-Bourgon (2007)	5.6 yrs (avg)	Varied: National, state or provincial criminal justice records.	12.4%	Metanalysis of 72 studies, included mixed groups of adult sexual offenders.
Millroy (2003)	6 yrs	Reconviction for a felony sex offense.	29%	Sample of 89 high-risk sex offenders released from prison, referred for a civil commitment but released to the community.
Hanson and Bussier (1998)	4 to 5 yrs	Varied: National, state or provincial criminal justice records.	18.9%	Metanalysis of 61 studies, included mixed groups of adult sexual offenders.
Rice, Quinsey and Harris (1991)	6 yrs (avg)	Reconviction for a sex offense.	31%	Sample of child molesters.
Rice, Harris and Quinsey (1990)	4 yrs	Reconviction for a sex offense.	28%	Sample of 54 rapists released from prison.
Barbaree and Marshall (1988)	4 yrs	Official records of new sex charges/convictions, and Child Protective Agency records implicating offender in sexual abuse of children.	43%	Sample of untreated nonfamilial child molesters.
Sturgeon and Taylor (1980)	5 yrs	Reconviction for a sex offense.	25-30%	Sample of child molesters.

New sex crimes. Of 126 individuals with new sex crime arrests during the entire follow up period, 23 (18.3 percent) had hands-off crimes. These hands-off crimes were most often indecent exposure or some manner of prostitution. Five of these offenders eventually had a sexual assault arrest. Two more also had kidnapping charges, three had child abuse charges, four had assault charges, and nine had property or miscellaneous other offenses. Only five had no arrests involving another type of crime. Table 3 provides details regarding the types of sexual offenses involved in the arrests that occurred during the follow-up period.

Table 3. New arrests involving sex crimes: Offense detail

Arrest type	Number of offenders who received each sex crime charge type (Total N=126)	
	N	**% of total offenders***
1st degree sexual assault	15	11.9%
2nd degree sexual assault	17	13.5%
3rd degree sexual assault	18	14.3%
Attempted sexual assault	3	.4%
Sexual assault on a child	59	46.8%
Sexual assault on a client	2	1.6%
Enticement of a child	3	2.4%
Exploitation of a child	3	2.4%
Indecent exposure	8	6.3%
Incest with minor	2	1.6%
Prostitution	4	3.2%
Sexual assault on a child/position of trust	14	11.1%
Promoting obscenity to a minor	1	0.8%
Unspecified sexual assault	22	17.5%

*Percentages total more than 100% since multiple charges may be associated with each offender.

Treatment/supervision failure in the first few years of supervision was statistically linked with later rearrest in this sample of sex offenders.

Survival analysis is a set of statistical procedures used to discover relationships between variables and outcome events incorporating the passage of time until the outcome event occurs. One of the most compelling features of survival analysis is the ability to deal with the fact that participants vary in how long they have been at risk. Survival analyses are particularly suited to studies of recidivism because the length of time a released offender remains free of criminal behavior may have as much practical significance as whether recidivism occurs at all. Survival analysis can also indicate at what point in time an offender is at highest risk to reoffend, information that can be useful in the management of sex offenders.

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Failure to register. Fourteen percent, or 56 of the sample of 405 offenders, was arrested for failure to register as a sex offender, which was not placed in any crime category and was not considered a recidivism event in the analysis. However, 26 of these individuals were arrested for actual sex crimes and 10 others for violent crimes. This means that 64.3 percent of those who failed to register also committed a sexual or a violent crime. Only nine did not receive another arrest of any sort.

Predicting new arrest. The original 1998 study found that offenders with a score of four or more on the Colorado SORS were at greater risk of supervision or treatment failure than those scoring less than four. Such failure was found in the current study to correlate with all arrest types, particularly violent arrests (see Table 4). This finding supports the argument that treatment and supervision failure in the first few years of supervision is linked with rearrest. Those who failed treatment and supervision were 7.3 times as likely to be arrested for a violent crime.

The current study also found that a score of 4 or more on the Colorado SORS was predictive of new arrest. As with treatment and supervision failure, the greatest predictive power was found with arrests for violent crimes. A score of 4 or more yielded an odds ratio of 2.84 against new violent arrest at five years, as shown in Table 4. This means that those scoring at least 4 were almost 3 times as likely to be arrested for a violent crime compared to those scoring 3 or less.

Table 4. Predicting risk for violent arrests*

	Odds ratio	Failure % arrested	Success % arrested	P***
Treatment/supervision outcome**	7.269	16.9%	2.7%	<.0001

	Odds ratio	Score 4+ % arrested	Score <4 % arrested	P***
Sex Offender Risk Scale score	2.841	25.9%	11.0%	.005

*N=371. Only those at risk in the community for a minimum of five years are included.

**From 1998 study.

***Statistical significance determined using Fisher's Exact Test.

A valuable measure of recidivism is found in the interval of time over which an individual remains arrest-free. Survival analysis was used to compare time to new violent arrest and arrest-free time for those scoring 4 or more to those scoring less than 4 over the nine years following the original study. As can be seen in Figure 2, individuals in the low-risk group (those scoring less than 4 on the SORS) remained arrest-free, or "survived", for longer periods of time than did those in the high-risk group (those scoring 4 or more). In the accompanying figure, the increasing separation of the lines representing each risk group indicates that the difference between the risk groups becomes greater with increasing time. Even after 9 years, the rate of failure for the high-risk group remains consistent. This highlights the importance of long-term follow-up studies, and the durability of the Colorado SORS in predicting violent arrest over time.

Figure 2. Days to new violent arrest
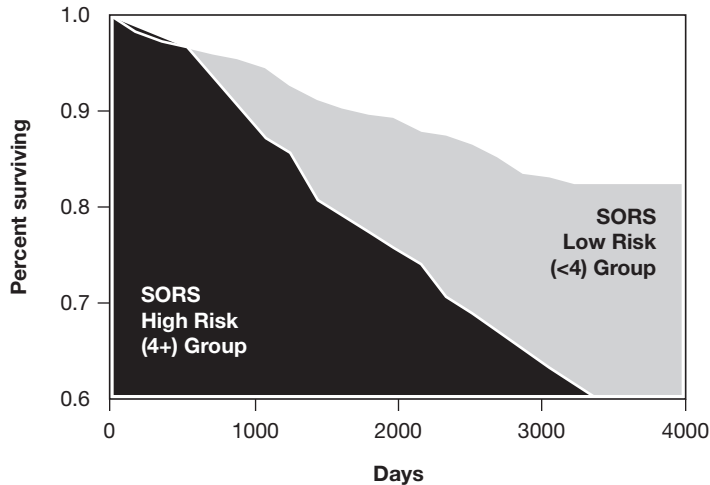
P=.004, using Tarone-Ware statistic. N=405.

Conclusion

The Colorado SORS predicts well. The Colorado Adult Sex Offender Risk Scale (SORS) was found to accurately delineate sex offenders presenting a greater risk to public safety from those who present a lesser level of dangerousness. The ORS uses violent arrest as the measure of recidivism in sex offender studies. This is because violent crimes are almost twice as likely to be reported to law enforcement as sexual crimes,[9] and because research has found that only 43 percent of reported sex crimes against adults results in an arrest, and fewer still in prosecution and conviction (Tjaden & Theonnes, 2006). The use of violent crime as an outcome measure is a reasonable proxy, as these crimes have a significant impact on public safety. Further, in the case of sex offenders, such crimes may have a sexual component or motivation (Quinsey, Harris, Rice, & Cormier, 1998).

Study limitations. Issues confounding actuarial risk assessment for sexual offenders include insensitive measures of recidivism and hesitancy on the part of many victims to report such crimes. Research shows that approximately 30 percent of sexual assault victims are under the age of 12, and these victims are least likely to report the crime to law enforcement (Kilpatrick, Edmonds, & Seymour, 1992). General population studies have established that sexual victimization is rarely reported (Catalano, 2005; Finkelhor, Hoteling, Lewis, & Smith, 1990; Kilpatrick, Edmonds, & Seymour, 1992; London, Bruck, Ceci, & Shuman, 2005; Tjaden & Thoennes, 2006). Even if an arrest is made, the use of prosecution or conviction data as an indicator of reoffense is hampered by a variety of factors, including administrative policies, surveillance priorities, availability of witnesses (particularly when these are young children), and the circumstances of the offender (Kituse & Cicourel, 1963; Morris & Hawkins, 1970; Geerken, 1994; Elliott, 1994). Consequently, many sex offenders may appear to be "nonrecidivists" when, by virtue of the characteristics associated with the very topic of interest—new sex crimes—only 3 percent of the rapes of adult women result in conviction (Tjaden & Theonnes, 2006); this is lower, of course, for cases involving victims who are children.

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9 The National Crime Victimization Survey collects crime victimization data semiannually from over 40,000 households; information is obtained on crimes committed against household members over the age of 12. In 2005, the NCVS found 61.5% of violent crimes were reported to law enforcement compared to 38.3% of rapes and sexual assaults. The proportion of reported sexual assaults increased from 30.7% in 1996 to 38.3% in 2005 (see Table 91, Criminal Victimization in the United States, 2005 Statistical Tables, December 2006, available at: http://www.ojp.usdoj.gov/bjs/abstract/cvus/reported_to607.htm).

This study confirms the need—often discussed in the research literature—to ensure long follow-up periods when studying the recidivism of sex offender populations (Prentky, et al., 1997; Hall, 1995).

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