Colorado Division of Criminal Justice

Adult Sex Offender
Risk Assessment Screening Instrument

Progress Report 1.a

Pursuant to 18-3-414.5. Colorado Revised Statutes

Prepared By

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BACKGROUND

Special precautions should be taken in the community management of sexually violent predators. Pursuant to CRS 18-3-414.5, the Colorado Division of Criminal Justice worked in consultation with representatives of the state Sex Offender Management Board (SOMB) to develop a risk assessment screening instrument for use in the identification of *sexually violent predators.* This document describes the process and the product that resulted in the Colorado Adult Sex Offender Risk Assessment Scale.

Sex offenders designated as violent predators, after July 1, 1999, shall be required to register with local law enforcement officials every quarter whereas other sex offenders are required to register every year on their birthday. This registration will include, at minimum, the location of their residence at the time the offender last registered. Sex offender registration is a law enforcement tool implemented to assist in the criminal investigation of reported sexual assaults by ensuring that authorities have the names and descriptive information of past sex offenders residing in their jurisdiction. The registration list may be released to the public upon request.

The Office of Research and Statistics (ORS), in the Division of Criminal Justice (DCJ), serves as staff to the Sex Offender Management Board (SOMB), created pursuant to 16-11.7-103(1), CRS. The ORS conducted the research study presented here on behalf of the SOMB under grant number D97DB15A694 from the Drug Control and Systems Improvement Program (DCSIP).

The research design was the product of the SOMB's Risk Assessment Subcommittee working collaboratively with the ORS. The SOMB membership includes the government agencies and private sector treatment providers who agreed to participate in the study. The research study described here exemplifies the multi-agency, multi-disciplinary collaborative process necessary for meaningful sex offender containment strategies. The Colorado Adult Sex Offender Risk Assessment Scale (SORC) is one product from this collaborative research effort.

INTRODUCTION TO RISK ASSESSMENT RESEARCH: SEX OFFENDER RISK FACTORS AND RESEARCH CHALLENGES

Risk assessment is a key component of correctional population management. Research pertaining to offender risk of supervision failure dates back to the 1920s (Warner, 1923; Hart, 1923; Warner, 1928). Research specifically targeting risk assessment of adult sexual offenders has occurred only within the past two decades. Important work was reviewed prior to the current study, and risk factors identified and studied by other researchers were incorporated in this research. Such factors include *psychopathy* (Hare, 1991; Harris et al., 1991; Hart, Kropp and Hare, 1988; Serin et al., 1990), impulsivity (Knight and Prentky, 1990), *deviant arousal* or *versatility of sexual offending* (Serin, 1994; Rice et al., 1991; Barbaree and Marshall, 1988; Brown and Forth, 1997; Forth and Droner, 1996; Hart et al., 1998), *prior sexual offending history* (Hall, 1988; Hansen et al., 1992; Marshall and Barbaree, 1988; Rice et al., 1991; Rice and Harris, 1997; Simkins, 1990), *employment* (Hart, Kropp and Hare, 1988), *victim injury* (Harris et al., 1995), *coercion* in the instant offense (Simkins, 1990), *boy victims* (Hanson and Bussiere, 1996; Hanson, 1998), *diverse victim types* (Hanson and Harris, 1998), *young age of victims* (Barbaree and Marshall, 1988; Quinsey et al, 1995; Hanson, 1997), *any stranger victim* (Hanson 1998), *any personality disorder* (Harris et al, 1993; Rice and Harris, 1997; Quinsey et al., 1995), *past violence*

(Karson and Bigelow, 1987; McNeil, Bender and Greenfield, 1988; Palmstrierna and Wistedt, 1989), and young age of offender (Harris et al, 1998; Quinsey et al, 1995; Hanson, 1997).

Factors that predict risk vary considerably across studies because the studies and the samples vary considerably in a number of ways. First, studies often vary in how risk and recidivism is defined. Recidivism is usually defined as rearrest for any crime, violent rearrest, violent conviction, sex crime rearrest or sex crime conviction and recommitment. These common measures rely on official records of police and criminal justice system intervention. Official record data will always significantly under-report actual offending behavior because most sex offenses go unreported[1]. A less common outcome variable is treatment or supervision compliance, a measure that does not depend completely on victim reports. This is the outcome measure used in the current study and is discussed later in this report.

This reliance on official records to obtain information about new assaults leads to another problem in risk prediction: Official reports of offending behavior likely reflect the type of victim targeted and so the outcome data may be systematically biased by victim type. For example, if certain types of victims are less likely to report the assaultive behavior, say incest victims or victims of acquaintance rape, then these crime types will be underrepresented in all of our offender samples. Some study samples, such as those used to build the RRASOR (Hanson 1998) and the tool used by the Minnesota Department of Corrections (Epperson et al, 1998) specifically excluded incest offenders and so the instruments will miss the risk presented to this victim type.

Most study groups represent institutionalized sex offenders (usually in prison or in mental health institutions). Many studies use the conviction crime to identify the sample, i.e., rapists/child molesters/incest perpetrators, and risk is defined differentially according to the separate groups, and sometimes the groups are combined. Research underway by the Colorado Department of Corrections (Alhmeyer, Heil et al, in press) and the ORS (English and Wensuc, in progress) using polygraph data suggest these groupings by conviction categories do not represent offense behavior. Significant heterogeneity exists in offending patterns: Based on sexual history information obtained from Colorado prisoners and parolees, 45% of stranger rapists also assault people they know, and 68% of offenders who were relatives of the victim offended against non-relatives.

Another important research challenge involves the availability of data across jurisdictions. If available, do the data vary in reliability, completeness, and accuracy? Characteristics of offenders vary across studies, too. Also, predictive risk models will, of course, include only those factors that were identified as important to study when the research project is designed.

Finally, the at-risk study period varies considerably across studies. The longer the at-risk period, the greater the likelihood of failure. Typical observation periods range from 2 to 5 years. In the current study, described below, a 12 month follow-up period was used due to legislation requiring the development of the scale by January 1, 1999.

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[1] In *Rape in America: Report to the Nation,* Kilpatrick et al. [1992] present information obtained from a national probability survey of 4008 adult women. Researchers analyzed 714 cases of rape experienced by 507 victims in the sample. Only 16% of the victims ever reported the rape(s) to the police and of those who did, fewer than 1% of perpetrators spent more than one year incarcerated for the crime. Forcible rape was defined as "an event that occurred without the woman's consent and involved the used of force or threat of force, and involved sexual penetration of the victim's vagina, mouth or rectum.

With this information in mind, and with on-site research design consultation by Dr. R. Karl Hanson from the Corrections Research Department of the Solicitor General of Canada and Dr. James Breiling, manager of the Sexual Violence Research Program at the National Institute of Mental Health, U.S. Department of Health, the ORS worked with the SOMB to design and implement a risk assessment study that would be applicable to sex offenders in Colorado who were serving sentences throughout the criminal justice system. Recidivism data were collected after only 12 months, due to time and resource constraints. The research design and the findings, presented below, reflect this constraint. Recidivism data will continue to be collected by the ORS on behalf of the SOMB in future years, as funding allows. Analysis of the current data set will continue beyond the submission of this report. The risk instrument will be modified, or additional risk instruments will be constructed using different outcome measures, as analysis continues and new information is learned.

SUMMARY OF THE CURRENT STUDY DESIGN

Description of the Sample

The sample consisted of adult male sex offenders who were placed on probation supervision, in community corrections (prison diversion), parole, and prison treatment (Phase One and Phase Two) in the following jurisdictions between December 1, 1996 through November 30, 1997. A total of 494 cases from the following jurisdictions participated in the study:

Probation Districts:	18th (Arapaho County)
	2nd (Denver County)
	4th (El Paso County)
	1st (Jefferson County)
Community Corrections:	ComCor, Inc. in El Paso County
Parole:	Denver County
	El Paso County
Prison:	Sex Offender Treatment Program, Phase One, Fremont Correctional Facility
	Sex Offender Treatment Program, Phase Two, Arrowhead Correctional Facility

Phase One of the Department of Corrections' SOTP (Sex Offender Treatment Program) is a six-month education program for inmates who volunteer for sex offender treatment. It is a prerequisite for entering Phase II. Phase II is a prison-based therapeutic community. Participants are involved in treatment activities for a least four hours each day.

These jurisdictions and programs were selected because the sites, in general, processed the largest number of sex offender cases in the state. Risk assessment procedures affect all disposition locations in the system. Therefore, cases in probation, community corrections, prison and parole were all selected as part of the sample so that implementation barriers–data access, data completion,

the feasibility of filling out certain data collection forms–would be identified and, if possible, overcome.

Fewer than 20 cases were obtained from ComCor, Inc. in Colorado Springs, the community corrections sample, so these cases were combined with probation cases for purposes of analysis. The total number of cases from each site is as follows:

Probation	218
Department of Corrections	224
Parole	47
TOTAL	494

Data Collection

Data were collected on a number of dimensions considered to be related to failure in sex offender treatment and rearrest, according to the research literature and the clinical experience of members of the SOMB Assessment Committee. The constructs the group agreed to attempt to measure were:

- Personality Descriptions
- Psychopathy
- Cognitive Distortions
- Criminal History
- Juvenile Criminal History
- Sexual History
- Characteristics of the Current Offense
- Demographic Information
- Substance Abuse History
- Dynamic Indicators of:
  - Motivation for Treatment
  - Denial
  - Empathy
  - Readiness to Change
  - Social Competence and Relationships
  - Deviancy
  - Pro-Social Behaviors

The current study design allowed for measures of both static and stable dynamic variables for predictor variables.[2] Working with private treatment providers in the Denver Metro Area and Colorado Springs, and the clinical staff of the Sex Offender Treatment Program of the Department of Corrections, the following data collection instruments were used.

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[2]Acute and Immediate factors require ongoing surveillance by the supervising officer and careful monitoring of the treatment contract.

1. Personality Disorders. The MCMI III,[3] a personality inventory scored on all inmates entering the Department of Corrections. This is a 240-item client self-report questionnaire that identified eighteen different personality or mental health diagnoses. Therapists were responsible for obtaining the MCMI forms from DCJ researchers, asking the offender to complete the form, and returning the form to DCJ for data entry and analysis. A total of 274 MCMI instruments were analyzed for this study.

2. Psychopathy. The Hare Psychopathy Checklist, Screening Version (PCL-SV),[4] identifies a particular dimension of dangerousness, and has been tested in a variety of countries, including Canada, New Zealand and Australia. Offenders who score 18 or above on this scale have been found to be at considerable risk for violent rearrest. The SOMB invited Dr. Robert Hare and Dr. Steven Hart to Colorado for a 3-day training for therapists who agreed to participate in the study and paid for their certification in the use of the tool. The PCL-SV forms were supplied to therapists by the SOMB (using research grant funds) for completion on study cases and returned to DCJ for data entry and analysis. A total of 196 PCL-SV were analyzed.

3. Cognitive Distortions. Progressive Therapy Cognitive Screening Scale is an instrument developed by one of the members of the SOMB Research Assessment Committee. Because the issue of cognitive errors is believed to be central to an offender's risk cycle, this 50-item instrument was included as part of the data collection package. A total of 262 of these forms were returned to DCJ for analysis, but the items in the scale appeared unreliable and so were excluded from further analysis.

4. Sexual History. Dr. Jack Gardner, a member of the SOMB Research Assessment Committee, developed a Sexual History Questionnaire based on a literature review, clinical discussions within the Committee, and Dr. Gardner's experience. This 50-item questionnaire was completed by the therapists after the offender had entered treatment. 190 of these forms were returned to DCJ for analysis. This instrument proved to be extremely valuable and will be included in the SOMB's future data collection and case tracking research mandated by the General Assembly.

5. DCJ Criminal Justice Data Collection Form. This data collection instrument has been used by ORS researchers for more than a decade. Its focus is demographic items, juvenile and criminal history, current crime factors, victim characteristics, substance abuse and other case descriptions that are typically used by decision makers who handle the case. ORS researchers used this form to collect data on 460 offenders in the study.

6. CO-SOMB Checklist. The SOMB Research Assessment Committee identified several clinical issues that they believed were central to dangerousness. The Committee worked with Dr. Paul Retzlaff, an expert in psychometrics from the psychology department of University of Northern Colorado, to develop an instrument that could capture and quantify these dynamic factors. The Committee identified *Motivation for Therapy, Level of Denial, Level of Empathy, Readiness to Change,*

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[3]The MCMI-III is the Millon Clinical Multiaxial Inventory, version three, by Theodore Millon, Carrie Millon and Roger Davis, available from National Computer Systems, phone 800.627.7271.

[4]The Hare Psychopathy Checklist, Revised, developed by Robert D. Hare at the University of British Columbia, is published by Multi-Health Systems, Inc, 65 Overlea Boulevard, Suite 210,Toronto, Ontario, M4H1P1.

Interpersonal Competence, Positive Social Support, Deviant Sexual Practices, and Lifestyle Stability/Treatment Compliance (the group called this Taking Care of Business). Dr. Retzlaff constructed, with the group's considerable input, an eight-item instrument with, 8-subscale (each with a 1 through 5 scale) describing each dimension, and therapists were instructed to score the offender on the SOMB Checklist during the first month of therapy. A total of 232 forms were completed and analyzed for this study.

7. Polygraph disclosures. ORS researchers obtained polygraph data when it was available (152 cases) in an effort to better understand the relationship between polygraph data and risk. Because the information was unavailable in many cases, analysis of this information was considerably limited. Information from polygraph reports will be collected on this sample in the future.

Outcome Measures

Because of the short follow-up period of 12 months, many outcome variables were collected. Information was collected concerning whether or not the offender had:

- committed a new crime (sex crime or other crime),
- been revoked from supervision, was revoked and reinstated,
- been revoked and placed on ISP, was revoked with the case pending,
- been terminated from treatment for noncompliance,
- been expelled from treatment and readmitted,
- been absconded supervision,
- successfully completed supervision/treatment,
- transferred out-of-state,
- died, or
- was still in treatment.

The therapists' opinion of the case as doing well, having problems, or on the brink of failure was also collected.[5] Many of these items will serve as interim variables for future analyses as ORS continues to collect outcome data on this sample.

This information was collected by ORS researchers reviewing electronic rap sheets (the Colorado Crime Information Center and the National Crime Information Center). Because very few offenders were expected to fail by this measure in one year, additional data were collected by interviewing each supervising officer, therapist or both to obtain details about the status of each cases that had not been rearrested.

Considerable support in the literature exists for using revocation and treatment failure variables as risk indicators. These failures in supervision and treatment are significantly related to future rearrest. Marques et al. (1994), in the most carefully designed and executed study of sex offender treatment effects of an incarcerated population, found noncompliance with treatment and dropping out of treatment to predict rearrest in the community. Epperson et al. (1995), Hanson et al. (1993), Lab et

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[5]Six cases were "on the brink of failure," meaning that a revocation was in the process of being filed.

al. (1993), Pierson (1989), and Reddon (1996) have found offenders to be at high risk when they fail to comply with institutional treatment. Hall (1995), Lab (1993) and Money and Bennet (1981) found noncompliance with community supervision to indicate high risk. Pithers, Beal and Buell (1988) found anger, anxiety and depression to precede sex crimes and have explicitly defined the risk cycle as: negative affect—> paraphiliac sexual fantasy—> cognitive distortions—> passive planning just before the assault. MacCulloch et al. (1983) identified planning and behavioral referral to precede the assault. Hanson's recent work on dynamic variables found social adjustment, substance abuse, sexual pre-occupations, victim blaming, self management-- that is "sees self as no risk," "access to victim", and cooperation with supervision (disengaged, manipulative, no show/late, and overall cooperation) to be significantly positively related to committing a new sex offense.

RESEARCH FINDINGS

Description of the Sample

The sample consisted of offenders convicted of the following crimes:

Sexual Assault (1,2,3 Degree)	26.0%
Sexual Assault on Child	54.4
Exposure	2.2
Assault	1.7
Kidnaping	2.5
Exploitation/Del. of Minor	3.2
Other	10.0
TOTAL	100.0%

Eighty percent (80%) of the sample consisted of adult male sex offenders meeting the definition of Sexual Predator Crimes pursuant to S.B.97(84), i.e., convicted of one of five felony sex crimes: first, second or third degree sexual assault, sexual assault on a child, or sexual assault on a child by a person in a position of trust.

Early analyses indicated interesting findings regarding the use of a weapon and the relationship between the offender and the victim. Of the offenders in the sample who used guns, 36% considered themselves friends with victim; 18% were acquaintances; 9% were spouses, and 27% were strangers (information was unavailable on 12% of the gun cases). A large proportion of offenders who used knives used them on strangers (45%), 10% used them on friends, 10% on relatives, and 5% on spouses (relationship information was unavailable on 5% of knife cases).

Preliminary analyses of MCMI data and polygraph disclosures suggest that certain personality types may be more likely to disclose information to the polygraph examiner. Cases who are diagnosed on the MCMI as dependent, sadistic, borderline, of paranoid were more likely to disclose information. Individuals who scored compulsive on the MCMI were less likely to disclose information during the polygraph exam. In every diagnostic category, the number of study cases was below 50, so the results are interesting but must be interpreted with caution (approximately 26% of the cases had polygraph data, and just over half had MCMI tests). Further analysis of this issue is recommended.

Outcome Data

At risk to fail was defined as: revocation, revocation pending, negative treatment termination, absconded, commission of a new sex crime, and being on the brink of failure according to the supervising officer or prison therapist. Even if the case was revoked and reinstated, or terminated for treatment noncompliance and reinstated, the cases was considered at risk to fail and so designated to have a negative outcome. Future analyses will explore the data using a variety of outcome measures.

This definition was used for a variety of reasons. First, the follow-up period was short (12 months), which was required by the length of the research grant and the January 1, 1999 completion date mandated by S.B. (97)84. Second, the literature supports the empirical link between failure under supervision and rearrest. Research conducted by the sex offender treatment program at the Colorado Department of Corrections (from which nearly half of the sample is drawn) documents the link between treatment failure, dropping out and rearrest. Third, at-risk behavior defined by the therapist or supervising officer may be the measure least contaminated by the official criminal justice system process. Inasmuch as rearrest may be a better (not to mention earlier) measure of new criminal behavior compared to reconviction (which is tied to evidence and witnesses) and recommitment (which is often tied to criminal history or criminal justice status), revocation or on-the-brink behavior reflects early indicators of problems. Problems of almost any kind are related to risk of rearrest, according to Hanson's (1998) study of dynamic predictors. Notable exceptions are problems related to life stress, length of treatment, and lack of access to fun and relaxation.

The obvious disadvantage of using revocation as an outcome measure is its lack of specificity. The measure likely taps criminality in general rather than risk for new sex crime. In one year, however, six of the study cases committed a new sex crime, and 30 more cases committed a new crime, so it is too early in the course of following this sample to statistically use crime as an outcome. If we are tapping criminality generally rather than sexual risk specifically, the literature is clear that criminal history generally consistently predicts risk of general violence (Harris et al., 1993; Rice and Harris, 1997) and rape (Quinsey, 1995; Hanson and Bussiere, 1996; and Hanson 1998).

Another disadvantage in the at-risk variable is the use of "on-the-brink," which is the opinion of therapists or supervising officers that the offender is very close to being revoked. This is a subjective and controversial measure--perhaps it measures a personality conflict between the two rather than anything associated with public risk. This is also the case with "revoked and reinstated. The revocation piece is more likely to measure the behavior of the offender whereas "reinstated" reflects a decision, not the offender's behavior. Hanson's (1998) findings that offenders who were not complying with supervision conditions (discussed above) and who considered themselves not at risk were significantly more likely to commit a sex crime and the data collectors' ability to reliably gather this information from probing interviews gives us confidence that we are indeed tapping precursor-to-crime behavior. In the future, we shall test this variable against more objective negative outcomes and modify our analyses accordingly.

Using this definition of failure, 54% of the sample had failed in one year. The remaining 46% are considered "ok so far" and we will continue to track the status of all of the offenders in the sample in coming years. The breakdown of outcome findings is presented below.

OUTCOME INFORMATION

	OKSOFAR		Failure	
Probation	59%	(129)	41%	(89)
DOC	34	(78)	66	(151)
Parole	47	(22)	53	(25)
TOTAL	46%	(229)	54%	(265)

For purposes of comparison, consider the meta-analysis conducted by Hanson and Bussiere (1996) of 61 studies of sex offender rearrest or reconviction. The studies averaged a follow-up period of 4-5 years, and Hanson and Bussiere found 13.4% recidivated with a sexual offense. According to their original crime of conviction, 18.9% of rapists and 12.7% of child molesters committed a new sex crime. Overall, 36.3% recidivated with any crime (46.2% for rapists, 36.9% for child molesters).

Unfortunately, the majority of these studies--like most sex offender risk research--used official record data, an insensitive measure of new assaultive behavior. The measure used for the current study was selected because it is arguably a more reliable measure of actual sexual assault risk since failure under supervision is empirical linked to recidivism. These are empirical questions that will continue to be addressed in future follow-ups of the study sample. Use of this outcome variable is consistent with sex offender management practices and philosophies in Colorado. The Containment Approach endorsed and described by the SOMB standards for practice emphasizes preventing new assaults by sex offenders under criminal justice supervision. The use of measures that capture unacceptable pre-risk behaviors that result in supervision revocation or treatment noncompliance is consistent with the work of the Containment Approach, described elsewhere (English, Pullen and Jones, 1996; English, 1998)

Using this measure of risk, correlation and chi square analyses revealed significant differences between the two outcome groups. The groups are defined as failed and OKSOFAR, since they have not failed to date but we will continue following them into the future. Differences between the group are described below.

Characteristics of the Index Crime:	OKSOFAR	Failure
On Probation When Arrested	30%	70%
On Parole When Arrested	14%	86%
Used a Weapon:		
Gun	36%	64%
Knife	45%	55%
Used Physical Force	40%	60%
Sexual Assault was NOT Arousing	26%	74%
Victim was a Relative	57%	43%
Crime was Adult Rape	42%	58%
Victim was Drugged	0%	100%
Perpetrator was Intoxicated		
Drugs	28%	72%
Alcohol	49%	51%
Both	36%	64%
Total Number of Counts Charged	39%	61%

Criminal History	OKSOFAR	Failure
No Prior Felony Convictions	56%	44%
1+ Prior Felony Conviction(s)	35%	65%
1+ Sex Offense in last 5 years	30%	70%
1+ Juvenile Conviction	40%	60%

Relationship to Victim (Index Offense)

	OKSOFAR	Failure
Incest	41%	59%
Relative, Not Living Together	55%	45%
Friend	48%	52%
Acquaintance	35%	65%
Stranger	60%	40%
Relationship unknown	33%	67%

Demographic Characteristics

Employment at Arrest:

	OKSOFAR	Failure
Full Time	52%	48%
Part Time	40%	60%
Sporadic	46%	54%
Unemployed	41%	59%

Marital Status

	OKSOFAR	Failure
Never Married	38%	62%
Common Law	41%	59%
Married	59%	41%
Separated/Divorced	55%	45%

Education

	OKSOFAR	Failure
8th Grade or Below	31%	69%
HS Diploma	55%	45%
GED	45%	55%
Some College/College Degree	54%	46%
Graduate Degree	45%	55%

Offender Characteristics

	OKSOFAR	Failure
Held Back in School	46%	54%
Failed 1st or 2nd Grade	30%	70%
Frequently Relocated as a Child	38%	62%

The CO-SOMB Checklist Scale correlated significantly ($p < .001$) with failure as follows:

CO-SOMB Checklist	r
Social Skills	-.33
Motivated for Treatment	-.31
Interpersonal Competence	-.29
Lifestyle Stability	-.28
Readiness to Change	-.26
Level of Denial	.26
Level of Empathy	-.21
Deviant Sexual Practices	.20

The reliability coefficients (alpha) for the SOMB Checklist Scale ranged from .74 to .94. Due to time constraints, therapists were not formally trained on the use of this form, and written instructions were not included. These reliability statistics suggest that this Checklist may be a useful addition to sex offender management because high scores (above 20) on any of the categories target specific areas for intervention. In Colorado, therapists evaluating sex offenders per the SOMB statewide standards for sex offender management will be required to use this form as part of the evaluation process. The forms will be forwarded to DCJ for analysis, so we will continue to learn about and improve the Checklist. The reliability coefficients for the SOMB Checklist are presented below (the number of cases ranges from 222 to 226).

CO-SOMB Checklist	alpha
Social Skills	.91
Motivated for Treatment	.91
Interpersonal Competence	.90
Lifestyle Stability	.89
Readiness to Change	.94
Level of Denial	.74
Level of Empathy	.91
Deviant Sexual Practices	.91

The Hare Psychopathy Scale (Short Version) significantly correlated with the outcome measure as follows:

Hare Factor One	.30 ($p < .01$)
Hare Factor Two	.16 ($p < .05$)
Hare TOTAL Score	.28 ($p < .01$)

Factor One measures personality characteristics such as selfishness and narcissism. It taps the psychological dimension of an individual. Factor Two measures behavior, such as criminal history, and it reflects the extent to which a person is engaged in an antisocial lifestyle. Using revocation as an outcome measure, personality traits, as measured by Factor One, are more predictive of failure, but Factor Two is also significantly related to outcome. This finding must be considered preliminary and viewed with caution since only 29 offenders scored 18+ on the Psychopathy Checklist. Despite the small number of cases scoring in the psychopathic range, this group proved to be at very high risk: 24 or the 29 offenders (82.8%) had a negative outcome within 12 months.

The MCMI calculates 26 personality subtypes. Factor analyses were conducted to determine if any of the subtypes "clustered" within the study sample, but this analysis proved unproductive. Twelve subtypes were identified as adding useful information about the sample: Schizoid, Narcissistic, Anti-Social, Sadistic, Negativistic, Schizotypal, Paranoid, Alcohol Abusive, Drug Abusive, Post-Traumatic Stress Disorder, Thought Disorder and Delusional Disorder.[6] Analysis of the MCMI data identified a valuable method for applying the MCMI data on this sample that is not dependent on specific MCMI diagnoses. Rather, this approach uses the *number* of diagnoses an individual scores on the MCMI. Two-thirds (67.4%, n=64) of the group of offenders that scored *three or more MCMI diagnoses* failed on the outcome measure, and the probability of failure averaged a probability of failure

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[6]Two MCMI subtypes were excluded because they were significantly related to errors in prediction in the final regression model. The Self-Defeating subscore increased the rate of false negatives (those predicted to succeed who actually failed) and Anxiety increased the rate of false positives (those predicted to fail who actually succeed).

exceeding 71%. Those who had zero, one or two diagnoses had a relatively equal chance (approximately 50-50 on each score) of falling into the OKSOFAR category or the Revoked/On-The-Brink category. Statistical analysis of the relationship between MCMI personality categories and sex offender risk will continue and will be presented in future report updates.

RISK ASSESSMENT SCALE

The data were analyzed using stepwise regression and direct-entry regression (all the variables were entered simultaneously into the model) to determine what unique set of factors would empirically predict the probability of negative outcome. Because some variables may co-vary with each other, factors that were significantly related to negative outcome at the point of univariate analysis (presented above) may fall out of the analysis once multiple predictors are considered simultaneously. Further, risk assessment scale development prioritizes parsimony. That is, a handful of variables will likely hold the greatest predictive power and after these are identified and weighted, additional variables will add relatively little to the model's accuracy.

Parsimony is important because relatively short, quickly-completed instruments are better received by field staff. This is understandable given resource limitations and time constraints. Since, in general, little is added after the most powerful predictors are identified and coded, succinct instruments will not reduce predictive accuracy. Short, simple instruments are generally more reliable across coders, too; insuring accurate and reliable coding is very important when risk assessments are linked to policy mandates such as registration.

The source of the information for each of the items and the reference period (i.e.,past, recent, current) of the items are important in risk scale construction. For example, multiple sources of data such as official records, self reports, victim reports, and therapists assessments increase the likelihood that accurate, complete and accessible data will be used to obtain the final score. Including multiple reference periods (historical information, current crime descriptions, and current mind set) offers a balanced approach to risk assessment, particularly when including dynamic factors is important. Dynamic factors are valuable because they allow an offender to affect the outcome of the risk assessment score, and these items also direct treatment providers to target specific areas for intervention. But dynamic factors, such as attitude, are inherently more subjective for professionals to score, and consequently less reliable than static factors such as criminal history. On the other hand, criminal history and characteristics of the current crime are relatively reliable pieces of information but unchangeable items in a scale, i.e., beyond the offender's control and not subject to intervention. It is valuable to include both types of factors in a risk assessment scale.

With this information in mind, a 10-item actuarial risk assessment scale was developed and approved in December 1998 by the Sex Offender Management Board for use with sex offenders in Colorado correctional placements. Each item is to be scored 0 or 1 (no or yes, respectively), so an offender can received a score of 0 to 10. The Sex Offender Management Board recommended that cases scoring 4 or above on the following scale be considered a Sexually Violent Predator pursuant to 18-3-414.5 (Colorado Revised Statutes). The scale is presented below.

COLORADO DIVISION OF CRIMINAL JUSTICE
SEX OFFENDER RISK ASSESSMENT SCALE

Offender History:

1. The offender has one or more juvenile felony convictions or adjudications.
(Data Sources: Official records, PSIR, self-report obtained during the Sex Offense Specific Mental Health Evaluation required by the SOMB Standards.)

2. The offender has one or more prior adult felony convictions.
((Data Sources: Official records, PSIR, self-report obtained during the Sex Offense Specific Mental Health Evaluation required by the SOMB Standards.)

3. The offender failed first or second grade.
(Data Sources: Education Records, PSIR, self-report obtained during the Sex Offense Specific Mental Health Evaluation required by the SOMB Standards.)

4. The offender was not employed full time at the time of arrest.
(*Data Sources: PSIR, self-report obtained during the Sex Offense Specific Mental Health Evaluation required by the SOMB Standards.)*

Instant Crime:

5. The victim was intoxicated when the crime was committed.
(Data Sources: Victim Statement, PSIR, Police Report, self-report obtained during the Sex Offense Specific Mental Health Evaluation required by the SOMB Standards.)

6. The offender reports he was NOT sexually aroused during the current crime.
(Data Sources: Self-report, Sex Offense Specific Mental Health Evaluation.)

7. The offender possessed a weapon during the current crime.
(*Data Sources: Victim Statement, PSIR, Police Report, Mental Health Evaluation.)*

Current Scores on Somb Dynamic Indicators Checklist:

8. The offender scored 20 or above on the CO-SOMB Denial Scale.

9. The offender scored 20 or above on the CO-SOMB Deviancy Scale.

10. The offender scored less than 20 on the CO-SOMB Motivation Scale.
(*Data Source for 8,9,10: Sex Offense Specific Mental Health Evaluation required by the SOMB Standards.)*

The scale predicts that offenders who score 0-3 points on the 10 factors above have approximately a 50-50 chance of reoffending. Half of the offenders scoring 0-3 will get revoked or be on the brink of failure within 12 months, and the other half will be OKSOFAR. This inability to confidently identify lower risk offenders is a finding consistent with the risk literature that clearly indicates the predictive power of actuarial tools lies in identifying at-risk offenders, not in identifying offenders who will not reoffend (Hanson, 1998b; Quinsey, 1998).

Offenders who score 4 or more points on the DCJ Sex Offender Risk Scale are at greater risk of failure. Two-thirds of the offenders scoring 4 or more are at greater risk of negative case outcome.

Actuarial risk prediction places people in groups with different probabilities of reoffending. That is, the instrument does not predict individual risk. Rather, group risk is explicitly defined, and individuals fall into specific groups with known probabilities of risk.

Offenders who score 4 or more on the above ten risk factors will be considered Sexually Violent Predators when they meet the other criteria identified in 18-3-414.5 (C.R.S.).

DCJ's research on sex offender risk will continue (as funding allows) to improve the predictive power of this actuarial scale. Reducing missing data, obtaining more specific outcome data (particularly for serious events such as arrest), continuing to analyze existing data, and commencement of a validation study will enhance the scale along with our understanding of this dangerous correctional population.

DISCUSSION OF THE TEN RISK FACTORS

Item One: Juvenile convictions/adjudications. Early onset of delinquent or aggressive behavior is frequently cited in the criminology literature as an important risk factor. Hawkins and Catalano (1993) have summarized their review of 30 years of delinquency research on risk factors for co-occurring problem behaviors, including delinquency, dropout, teenage pregnancy, substance abuse, and violence. Those who endorse the social development model of delinquency propose that specific factors cause the onset, maintenance and continuation of delinquent careers and that these factors occur in relation to the chronological development of the child (Elliott, 1994; Farrington, 1986; Farrington and Hawkins, 1991). The chronological development emphasizes the influence of family variables in the early life of the child, followed by school experiences, and later, by peer group influences during adolescence.

Item Two: Prior adult felony convictions. The common adage "past behavior predicts future behavior" is frequently mentioned in risk research. In fact, prior adult criminal history is usually the strongest predictor of future criminality (Farrington, 1988), and nearly every risk instrument contains some measure of this factor. In criminology research, this information is relatively easily obtained from electronic files and institutional records, increasing its value to researchers. The review of risk factors presented earlier in this paper reflect the consistent finding of criminal history measures (violence, sexual offending history, general criminal history) in the sex offender risk prediction literature.

Item Three: The offender failed first or second grade. As mentioned in the discussion for Item One, above, the delinquency research clearly identifies evidence of early childhood problems to correlate consistently with adult criminality. Researchers studying sex offender risk in Canada have identified "permanent separation from both parents before the age of 16" as a powerful predictor of general violence and sexual violence (Quinsey et al, 1995; Quinsey et al, 1998). For this research, we tapped two measures reflecting early adjustment problems. We collected and analyzed Item Three and "ever held back in school." (We did not collect data for each grade, and Item Three combined both 1st and 2nd grade in the measure.) The literature on conduct disorders[7] identifies early

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[7] The DSM-III-R defines *conduct disorder* as a disturbance lasting at least six months, during which at least three of the following have been present: 1) has stolen without victim confrontation on more than one occasion; 2) has run away overnight at least twice; 3) often lies; 4) deliberately sets fires; 5) often truant from school; 6) has broken into house, building, car; 7) deliberately destroyed property; 8) been physically cruel to animals; 9) forced someone into sexual activity; 10) used a weapon on more than one fight; 11) often initiates physical fights; 12) has stolen with confrontation; 13) been physically cruel to people.

temperamental difficulties as important to pro-social adjustment. Temperment refers to aspects of personality that are consistent across time (Kazdin, 1992) and include individual characteristics such as: activity level, responsiveness, consistency of mood, social adaptability, willingness to adjust to change, level of happiness (Chess and Thomas, 1977; Rutter and Quinton, 1984). Children who are difficult tend to show later behavioral problems compared to children who are easy to manage (Bates et al,1991; Reitsma-Street et al, 1985). In young children, these are the precursors of conduct disorder. Children with chronic ill health, central nervous system damage have three to five times the risk of conduct disorders (Brown, et al, 1981; Cadman et al, 1986). Loeber and Dishion (1983) found that children who are aggressive at ages four to six have an increased likelihood of developing conduct disorder, and as the aggression is combined with other behavior characteristics, the predictive power increases. Aggressiveness combined with shyness has also been found to be predictive of conduct disorder (Farrington and West, 1990; McCord, 1988). The number of symptoms--and the earlier they occur--have been consistently linked to serious, chronic antisocial behavior (Farrington, et al, 1990; Loeber, et al. 1990; Tolan, 1987; Loeber and Dishion, 1983). Conduct disorder is hard to treat and has a significant level of persistence into adult life (Mrazek and Haggerty, 1994).

Item Four: Not employed full time at arrest.   This item refers only to full time employment; part-time or sporatic employment had no effect on recidivism.   Employment has been identified by Hart, Kropp and Hare (1988) as linked to failure in sex offender populations. Work by DCJ's Office of Research and Statistics has consistently found employment status to be related to failure under supervision, on both probation and parole samples (Mande and English, 1988; English and Patzman, 1995; English, Chadwick and Pullen, 1994; English and Mande, 1991). Hanson's (1998) study of dynamic risk factors found lack of accountability during leisure time to be correlated with rearrest for a sex crime, and being employed full time could reflect having less free time to commit sex crimes. As we have suggested before (English and Mande, 1991), employment may reflect an individual's higher level of functioning (compared to those not employed), and lower functioning–as measured by unemployment–may predict failure.

Item Five: The victim was intoxicated when the crime was committed. This risk factor is one of many index crime characteristics collected and analyzed in the current study. The data element refers to intoxication by drugs, alcohol or both. This item is important because it likely reflects the method of operation used by the offender to increase the victim's vulnerability. Further analysis will reveal if the factor is linked to acquaintance assaults.

Item Six: The offender reports he was NOT sexually aroused during the current crime.
This information was obtained from self-report data. Therapists asked the offender if he experienced an erection during the index crime. This item correlated with several other variables in the data set: on bond at the time of arrest for the current crime, on parole at arrest, convicted of multiple counts, older victim in the instant offense, juvenile history, use of a weapon during the current crime, and not motivated for treatment. It does not correlate with the dynamic measure of denial. Not surprisingly, this group was significantly more likely to receive a prison sentence for the current crime compared to probation or community corrections. The use of multi-variate statistics, such as the regression technique used to develop the scale, accounts for overlap among the variables analyzed, so very little redundancy exists across the ten items. Since Item Six correlates with three of the other items in the scale (juvenile history, use of a weapon, and not motivated for treatment) in univariate analyses yet it still loads into the final model, the item measures a distinct characteristic or phenomenon. It may tap individual aggression as measured separately from criminal history and behavior during the index crime. It also may measure attraction and interest in power, domination and violence rather than sex. Further analysis of this variable is necessary, but its value in the model

is quite clear: the chi square analysis shows this item clearly separates the success and failure groups. Only 26% of the OKSOFAR group scored positive for this factor compared with 74% of the group that failed, yielding a chi-square of 10.7 (n=221, p<001).

Item Seven: The offender possessed a weapon during the current crime. Scoring a 1 on this item does **not** require that the offender use the weapon, only that he possess a weapon on his person during the offense. Harris et al. (1993) and Quinsey et al. (1995) found victim injury during the index crime to predict future sexual recidivism, but this factor does not require physical injury. Two other measures of violence during the instant offense were analyzed (extensive psychological coercion and physical force) but this item revealed the most predictive power.

Item Eight: The offender scored 20 or more on the CO-SOMB Denial Subscale. The Sex Offender Management Board established a committee to guide the development of the risk assessment study. The membership of the committee included many therapists in the community who were actively engaged in treating sex offenders. These members identified several key constructs they felt were linked to treatment failure and later rearrest, based on their clinical experience and their knowledge of the treatment literature. The group considered using existing scales to tap the dimensions of interest, but the published scales tended to focus on one construct, such as social skills or distorted thoughts. To capture the many issues of interest to the group, the committee developed an instrument that tapped ten dynamic constructs (8 of these are listed at the top of page 14). The instrument was modified and finalized by a Dr. Retzlaff, an expert in psychometrics. The instrument, the CO-SOMB Checklist, proved to provide powerful information that separated the OKSOFAR group from the failure group. Three of the items were included in the scale, items 8,9, and 10. The Checklist was completed by the therapist during the first month of treatment.

Denial is commonly identified as an important issue in sex offender management. Anna Salter (1988) describes denial as occurring along a continuum, from denial of the acts themselves, to denial of fantasy and planning, to denial of the seriousness of the behavior, to denial of the difficulty in changing abusive patterns. Brake (1996) has identified four levels of denial, and fortunately assisted in the development of the Checklist. This item predicted very well (chi square was 8.9, n=245, p=.003).

Item Nine: The offender scored 20 or more on the CO-SOMB Deviancy Subscale. As noted in the review of risk factors presented earlier in this report, deviant arousal has been found to predict recidivism, particularly when it is paired with psychopathy. The score on this subscale indicates significant separation between the OKSOFAR group and the group that failed (chi square=16.3, n=245, p<.001).

Item Ten: The offender scored below 20 on the CO-SOMB Motivation Subscale. This item reflects the extent to which the offender is motivated to participate in sex offender treatment, as measured during the first month of involvement in therapy. Active participation in the intervention that is defined clearly by the SOMB's statewide standards for evaluation, treatment and monitoring is linked to successful supervision during the first 12 months of placement.

LIMITATIONS OF ACTUARIAL PREDICTION

In 1978, the American Psychological Association withdrew its support of members who testified to the dangerousness of individual offenders. The APA's position was based on a number of studies that revealed the error rate of clinical prediction was intolerably high. Studies of clinical prediction indicated that experts were wrong in their predictions of dangerousness, on average, two out of three times. While actuarial (statistical) prediction is not an ideal solution to the prediction of dangerousness, the approximate error rate of group predictions is known. Policy decisions about the cost of errors–overpredicting and underpredicting dangerousness–can be made in light of known probabilities.

The science of risk prediction is imperfect, however. Prediction variables are limited to data available in the file and to items that have a practical or theoretical link. The research literature is quite clear that criminal history, lifestyle and social adjustment variables, and opportunity are relevant and statistically powerful indicators of risk. However, actuarial methods are limited because offenders in any study group may vary on factors not measured. Prediction tools may lose efficiency over time. Generalizability of prediction tools across jurisdictions is suspect: "...it is essential that the sample from which it is derived is drawn from the population on which it is to be used" (Farrington and Tarling, 1985). Developing the scale on sex offenders convicted of crimes in Colorado and subject to the SOMB standards of assessment, evaluation, treatment and monitoring is, in fact, the ideal research design, despite the general limitations of actuarial risk assessment discussed here.

LIMITATIONS OF THE CURRENT STUDY

The follow-up period of 12 months is the minimum period for analysis. This time period was dictated by resource constraints and policy time lines. The Division of Criminal Justice will continue to collect outcome annual data on this sample, as resources permit. Updated outcome data and further analyses will likely result in modification and improvement of the risk scale over time.

The current study design depended on private therapists in the community to participate in the data collection. This design allowed for the acquisition of rich and otherwise unaccessible data. However, it also resulted in significant amounts of missing data when treatment providers were unable to forward completed data forms to DCJ. The missing data was not evenly distributed across forms or sample subgroups. DCJ researchers will continue to attempt to gather missing data elements, and these will be added to the data set for the annual reanalysis of the data.

Risk assessment instruments must be validated to ensure its generalizability to the research population of interest, in this case, convicted adult male sex offenders. The current scale requires validation. Once validated, it should continue to be modified and improved through further research. The Division of Criminal Justice will begin a validation study of limited scale (commensurate with resources available) immediately upon completion of the constructed (original) scale. DCJ shall, upon completion of the validation research, present revisions and modifications, if any, to the Sex Offender Management Board.

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