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THE IOWA ASSESSMENT TOOL: A PARTIAL REPLICATION

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EXECUTIVE SUMMARY

This study tests the feasibility of the Iowa Risk Assessment tool as a means of predicting parole outcomes in the District of Columbia. Developed by Darryl Fischer of the Iowa Statistical Analysis Unit, the Iowa Risk Assessment tool predicts the likelihood of both general recidivism and rearrest for violent offenses. An additional emphasis of the tool is that it purports to identify individuals of a previously unknown low recidivist risk so that these individuals may become candidates for early release. Finally, because the tool was developed and tested on large samples of probationers and parolees, it promises to have important implications for the development of both sentencing and parole guidelines. In this study attention is directed to the first two aspects of this tool, i.e., its ability to predict recidivism among parolees and its ability to identify individuals of low risk potential.

The data for this study were drawn from files and records maintained by the District of Columbia Board of Parole. Permission to access these records was obtained from the D.C. Board of Parole, and the data base for the study is comprised of a fifty-nine percent random sample of all individuals paroled to the District in CY 1980.

The N-size for this study is 581, although throughout the study the more typically reported N is 573, as missing data elements precluded complete risk assessments on eight cases.

By the way of overview the average age of the sample is 30.5 years (s.d.=7.8) although individual ages range from nineteen to sixty-four. The sample is, however, older rather than younger, as sixty-eight percent of the sample falls between the ages of twenty-five and thirty-nine.

Data on education and employment suggest that slightly more than 38% of the sample possessed some employable skill at the time of their arrest and that the mean level of education for the sample is tenth grade (s.d.=1.8 years). Additionally, fifty-one percent of the sample is reported to have been employed at the time of their arrest.

Data on marital status suggest that most sample members have never been married (70%), and that few have any significant number of dependents. Finally, the majority of the sample members were known to be living with relatives at the time of their arrest.

Approximately 70% of the sample members are reported to have some form of substance abuse history and this history appears to include a high level of narcotic rather than non-narcotic drug use. Only one fourth of the sample had known aliases.

Presenting or "current" offense data reflect an even distribution of violent, property, and "miscellaneous" offenses. Specifically, 34.7% of the sample had arrests for violent offenses, 31.9% for property crimes and 31% for "other" offenses. Among violent offenses robbery and assault predominated. Among property offenses burglary, motor vehicle theft and larceny predominated. Carrying a concealed weapon was the most reported offense in the "other" category.

Prior to presenting or current offense, only a small proportion (11.3%) of the sample had no prior history of arrest. Over 39% had one to six arrests, and 36% had between seven and fifteen prior arrests. Another 12.9% had more than fifteen prior arrests. Overall, the mean number of prior arrests for this sample was 8.3 (s.d.=6.9). In terms of incarcerations, only 40% of sample members evidenced a history of prior incarcerations. In fact, more than 50% had no prior adult incarcerations.

To test the major expectations of this study--that the Iowa risk assessment tool would efficiently predict rearrests among 1980 parolees and identify, as well, individuals of a previously unknown low risk level--we classified all sample members according to the criteria of the risk assessment tool so the (a) proportions of specific risk levels could be identified and (b) comparisons between real and predicted outcomes made. The variable parole outcome was defined by two measures: (a) recidivism, i.e., whether or not the parolee was rearrested within 18 months of release and (b) GENOUT, a general outcome measure ranging from zero to five and indicating outcomes which ranged from "no violation whatsoever" to "revocation of parole as a result of arrest and conviction" (value 5).

Our criteria for judgement were three fold: First, frequencies for predicted risk levels were examined to identify an expected "preponderance" of low risk individuals. Second, we compared predicted and real data for parolee success and failure outcomes within specified risk levels. Finally, we ran correlations between predicted and real outcomes so that pair-wise rather than aggregate success-failure levels could be obtained.

Our findings from this research indicate that the Iowa risk assessment tool is of limited use in the District of Columbia. Although tabular data indicate that the tool distinguishes low and high risk individuals in that low risk individuals had a 28% parole failure rate (viz., rearrest and high individuals a 67% failure rate), at no point did our correlations between real and predicted outcomes exceed .3 on a scale where 0.00 indicates no correlation and 1.00 a perfect correlation.

Finally, although frequencies on the violence rating scales did evidence a preponderance of low risk individuals, our outcome data did not support this preponderance. Rather our correlations between real and predicted outcomes for arrests for violent offenses remained inclusive: There was no association between what the tool predicted and arrests for violent offenses, and an analysis of outcome data in terms of specific variables within the tool confirmed this point.

We conclude, therefore, that the tool is of limited value in the District of Columbia, in that while it may identify aggregate levels of success and failure, it does not identify individuals in terms of their potential success and/or failure. Thus it should not be used as a means of identifying individuals for early parole release.

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ACQUISITIONS

THE IOWA ASSESSMENT TOOL: A PARTIAL REPLICATION

INTRODUCTION

The purpose of this report is to test the feasibility of the Iowa "risk assessment" tool for usage in the District of Columbia. This tool was developed by Darryl Fischer of the Statistical Analysis Center of the Iowa Office of Planning and Programming, and its main function is to index the level of "recidivism risk" posed to society by either (a) probationers or non-incarcerated offenders, or (b) the release of incarcerated offenders to a parole status.

The study of risk assessment as the prediction of recidivist levels is not new. Connolly (1981) for example, has presented an exhaustive review of "risk assessment" literature (albeit under the more general rubric of "suitability for parole"), and Fischer's own work in the area of risk assessment (1980a; 1980b; 1981) is substantial. Not only has Fischer developed an extensive risk assessment model, but he has modified it for testable use in a variety of ways. Further, his findings have provided Iowa researchers with a data base suitable for exploring the development of statewide sentencing and parole guideline policies.

Because the topic of risk assessment has its own inherent importance in criminal justice research, and because Fischer's work has figured prominently in this area, we sought to examine the utility of Fischer's tool as a means of predicting parole outcomes in the District of Columbia. More specifically, we attempted a partial replication of Fischer's research by measuring the extent to which it successfully predicted outcomes for a sample of D.C. offenders released to parole supervision in CY 1980.

Overall, our findings are mixed: while the Iowa tool predicts likelihood of arrests clearly for individuals of either a "low" or moderately "high" risk level, it does not predict well for individuals of "medium" and "super recidivist" levels. Moreover, our data do not distribute on the Iowa tool in the pattern Fischer's research leads one to expect. Rather, our data presents an opposite pattern - a preponderance of high risk levels and a diminished number of low risk levels. Finally, with respect to the prediction of re-arrest on violent types of offenses, the tool does not predict well at all. Although the desired proportions of predictions emerge in keeping with expectations of the tool neither the pattern nor the proportions of outcomes are as predicted. Rather, the findings appear quite random. We conclude, therefore, that this tool is of limited value in the District of Columbia.

I. PREDICTING PAROLE OUTCOMES

Assessing Risk Levels --- A Statement of the Problem

A major problem -- indeed the central problem -- in releasing convicted offenders is the risk of additional crime within the community, whether that crime is of a violent or non-violent nature. How then may one gauge this risk? One approach -- and the one traditionally followed by parole board personnel -- is to gauge the risk posed by such releases by a consideration of such factors as the potential parolee's age, past charge history (e.g. the number and seriousness of charged or committed offenses), past incarcerations and past behavior patterns.

While such factors are not irrelevant to the prediction of "risk" posed by release, they are, nonetheless, factors which must be judged meritoriously in the light of predictive efficiency or more specifically, their utility to predict actual recidivist outcomes. For example, although older offenders with extended prior arrests may initially be judged as high risks for release in contrast with younger offenders having fewer such prior arrests, Fischer's data on age and recidivism suggest that "risk" is greater for younger rather than older offenders, as when regression based predictions of lifetime arrests are computed and tabulated against specific age levels and recidivism rates, "offenders (in Iowa) age 45 and older with 24 lifetime arrests pose about the same risk of recidivism as 18 year olds with two lifetime arrests" (Fischer, 1981:11). Expressed differently, Fischer data provided documentation which suggest a strong empirical argument for evaluating risk levels via means other than those often traditionally used, and more specifically, via means which attest recidivist outcomes per se. What are the elements of Fischer's tool? And to what extent has it proved effective for the prediction of 'risk' relative to potential parolees? An overview of Fischer's "Risk Assessment System" -- its premises, development and findings addresses these concerns.

Tool Development and Grounding Premises. By way of background, Fischer developed his risk assessment tool through the use of two major samples of Iowa offenders: a "construction sample of (4704) adult probationers and parolees released from caseloads by discharge, revocation or as absconders during 1974-1976" and a "validation sample of (7813) adult probationers and parolees released from caseloads by discharge, revocation or as absconders during 1977-1979".¹

The initial variables comprising the system were identified through a series of computer aided analyses of offender-based data tabulated consistently since 1975 by several community-based corrections programs in Iowa. After

¹ The original N sizes for these samples were 6337, but missing data elements precluded risk assessments on (respectively) 25.7% and 16.8% of these samples.

these analyses aided in the deletion of several non-predictive factors, nineteen predictive objective offender characteristics were identified. These nineteen variables became the essential components of the system and were tested for predictive efficiency in both the construction and validation samples mentioned above. In turn, these two samples were combined, yielding a total of 12,517, the final number of risk assessments completed in 1980 for the evaluation of the tool.

Two major premises undergirded the process of variable identification and general tool development:

- (1) the efficient predictive power engendered by a tool which distinguishes levels of "high" risk -- so that the questions of "how high a risk" may be addressed, and
- (2) the desire to develop a tool which could be used in a practical way by criminal justice personnel associated with the development of guidelines relative to parole and probation policies.

Initial Findings and Expected Utilities. An important aspect in the development of any research tool is its improved efficiency over other tools addressing the same or similiar phenomena. To examine the relative efficiency of the Iowa risk assessment tool, Fischer and his associates compared the results of their tool with the result of a "statistical study on the validity of the Salient Factor Score, a risk assessment device being used by the United States Parole Commission as one component of a set of parole guidelines."²

A comparison of the two sets of predictive efficiencies engendered by these tools suggests that the Iowa-based tool predicted more efficiently (across construction, validation and total samples) than did the Salient Factor Scoring method, as when the Coefficient of Predictive Efficiency statistic (CPE) was computed for both tools, the CPE statistics were .807 and .198 for the Iowa and SFS tools respectively.

A word about the interpretation of these statistics is important. The CPE statistic is a measure developed by Fischer³ to show predictive efficiency with respect to higher and lower risk categories, and as developed by him for this purpose it ranges from zero to one and measures:

² Fischer, The Iowa Offender Risk Assessment Scoring System Volume I: System Overview and Coding Procedures, pp. 12-ff. The relevant secondary source as cited by Fischer is Peter B. Joffman and Sheldon Adelburg, "The Salient Factor Score: A Non-Technical Overview," Federal Probation, March, 1980.

³ Fischer, op. cit., pp. 15-16.

(a) the ability to split large numbers of cases away from the middle categories of risk level (into higher and lower risk categories); and

(b) the ability to attain high rates of 'failure' in high risk levels (which is desired) and low rates of 'failure' in low risk levels (which is also desired).

Expressed differently, the CPE statistic is a statistic indicating the relative strength of high and low risk predictive efficiency, or the relative success of predicting failure within high and low risk groups. Expressed in yet another way, it is a statistical means of demonstrating the practical utility of having several finely graded risk assessment category levels.

Levels of Risk and Specific Iowa Findings. Mention has been made of the numerous categories of risk prediction entailed in the Iowa risk assessment tool. These categories cut across two types of risk assessment prediction, i.e., the prediction of "General Risk" and the prediction of "Violent Risk". Fischer's own description is appropriate at this point.

The Iowa system rates each offender on two separate but complimentary scales of risk, including (1) the general risk of recidivism (reflecting the probability and potential seriousness of new criminal acts in general), and (2) the risk of violence (reflecting the probability of new violent acts). Any offender to whom the system is applied would be rated according to both general and violent risk, where the applicable ratings are as follows.

GENERAL RISK
SUPER RECIDIVIST
ULTRA-HIGH RISK
VERY-HIGH RISK
HIGH RISK
HIGH-MEDIUM RISK
LOW-MEDIUM RISK
LOW RISK
VERY-LOW RISK

VIOLENCE RISK
SUPER RECIDIVIST
ULTRA-HIGH RISK
VERY-HIGH RISK
HIGH RISK
HIGH-MEDIUM RISK
LOW-MEDIUM RISK
LOW RISK
VERY-LOW RISK
NIL RISK

A set of coding forms must be completely filled out to derive these separate but complimentary ratings, but the end result is a rating for each type of risk, i.e., the general risk of recidivism and the risk of violence posed by the release of the offender in question.⁴

⁴A complete copy of the forms is presented in Appendix A at the close of this report.

Does risk assessment work? Or more specifically, what are the results of Fischer's research?

The results of Fischer's research are numerous and fall generally into the two broad categories of (a) specific 'success/failure' findings and (b) the extended application of the system to questions of parole and sentencing guideline development. It is the "success/failure" findings which are important for our purposes.

It will be recalled from the earlier discussion on the CPE statistic developed by Fischer that the predictive efficiency generated by this tool is its ability to "split apart" cases of high and low risk, and its concomitant ability to attain high rates of predicted failures in high risk cases and low rates of predicted failures in low risk groups. A simple presentation of the frequencies attached to predicted offender risk levels for Fischer's combined sample, together with the proportions of actual outcomes for members of each predicted type of risk, illustrate the distinctive tool abilities and the overall effectiveness of the tool. These frequencies together with specific outcomes are presented below in Table 1.

TABLE 1

IOWA RISK ASSESSMENT OUTCOMES
(50% Outcome Index)

OFFENDER RISK LEVEL	TOTAL CASES	REVOCATION ABSCONDER	REARREST 18 MONTHS	THREAT TO PUBLIC SAFETY
SUPER RECIDIVIST	290	64.3%	88.3%	95.2%
ULTRA-HIGH RISK	472	48.9%	78.6%	73.4%
VERY-HIGH RISK	1,561	42.4%	66.6%	62.8%
HIGH RISK	1,269	31.0%	51.8%	45.3%
HIGH-MEDIUM RISK	860	22.3%	34.6%	26.6%
LOW-MEDIUM RISK	3,235	14.8%	22.8%	18.2%
LOW RISK	2,015	7.4%	14.6%	9.4%
VERY LOW RISK	2,815	3.0%	8.2%	4.5%
ALL OFFENDERS	12,517	19.0%	31.0%	26.5%

There are several observations to be made from this table relative to the efficiency or effectiveness of the Fischer risk assessment tool. First, it will be observed that the smallest proportions of total cases (i.e., 28.6% of the total sample) occur in the four levels of "high" risk whereas the largest proportions (38.6%) occur in the categories of "low" or "very low" risk. This observation confirms the desirable expectation of identifying a large proportion of individuals of low risk, who in turn might (because of their low risk) be considered as "good" candidates for release.

Secondly, it will be observed that the percentage of "failures" (with respect to revocation or absconsions) increases in accordance with the risk levels. That is, only 3% of the "very low" risk cases were unsuccessful, 7.4% of the "low risk" cases, 14.8% of the "low medium" risk cases and so forth throughout the table.

Similarly, the proportions of cases recidivating with 18 months also increase in accordance with the predicted risk levels, as only 8.3% of the "very low" risk cases recidivated, 14.6% of the "low risk" cases, and 22.8% of the "low-medium" risk cases.

Finally, in terms of the "threat to public safety" (measured here as "the number and seriousness of new criminal acts as well as the frequency of revocations or absconsions"), the pattern is again similar as only 4.5% of the "very low" risk cases were predicted to and did evidence a threat to public safety, as compared with 9.4% of the "low risk" cases, 18.2% of the "low to medium" risk cases, etc., up to 73.4% of the "ultra high" risk cases and 95.2% of the "super-recidivist" cases, viz., the two groups comprising the highest levels of predicted risk. These figures and the pattern they represent clearly indicate the success of the tool in predicting what it purports to predict.

The Purpose And Expectations Of This Study

Purpose. The purpose of this study is to test the feasibility of the Iowa Risk Assessment tool as a means of predicting parole outcomes in the District of Columbia. To demonstrate this feasibility (or, alternatively, its lack) we will test three expectations which may be derived from Fischer's work.

Expectations. The first and most fundamental expectation of the Fischer tool is that it will split potential parolees into high and low levels of risk with all of the preponderant proportions described by Fischer. That is, if the tool is

valid, it should distinguish a preponderance of low risk individuals and a smaller proportion of high risk individuals. This expectation is premised upon what Fischer describes as the "desirable goal" of a risk assessment tool, i.e., that it will not only predict accurately, but will identify, as well, previously unknown low risk cases.

The second expectation of this study is that this "splitting apart" process will hold for both the general and violence risk scales. That is, large frequencies of low risk assessments should be evident in both the Final General Risk and Final Violence Risk measures.

Finally, if the tool is valid, not only should specific directions of success and failure be evident, but they should be evident in a statistically significant manner.

Data And Methodology

The Data Base. The data for this study were drawn from the filed records of individuals paroled to the District of Columbia in CY 1980. The total study N is 581, although given the extensive missing data on some cases, the most typically reported N on distributions is 573. This latter N-size represents a 59% random sample of the 1980 parolee population.⁵

The Data Collection. Permission to access the District's parole records was obtained in August of 1983 through a request to the District's Board of Parole, and in October of 1983 the data collection was begun. Two coders were hired to collect the study data. The first was a full-time legal clerk seeking part-time research experience in the District's criminal justice system. The second was a former staff assistant to the Parole Board who had worked on several parole projects prior to the inception of this study.

To ensure a systematic data collection process, the names of all 1980 parolee were alphabetized and split into two separate (alphabetized) groups. These two lists were then given to coders and each coder was held responsible for the data collection of his or her subsample list. In addition, each coder underwent two afternoon-long sessions of study orientation to become familiar with the study needs and goals. Finally, both coders met with the project director for four preliminary "pre-test" coding sessions. Additional meetings during the data collection process were then on an ad hoc basis, typically one every ten days or so as coders became more familiar with their own patterns for collecting data of this type.

⁵ Both of these N's depart from the initially anticipated population N of 1,283. This anticipated study N was, however, incorrect; after the study was begun, we found that the actual number of 1980 parolees was 975. It is this figure which is used as the base for the 59% sample rate.

Data Reliability. Descriptive statistics on the sample and its characteristics are presented at a later point in this report. However, a word about the data and its reliability are necessary at this point.

Although we had expected to survey the entire 1980 parolee population for this study, we did not do so. Rather, we obtained only a 59% sample of this population. Two factors precipitated this decline in N-size. First, as is the case in any data collection, we experienced a limited amount of "missing data", i.e., case files that simply were not available to coders as parole personnel and/or other criminal justice personnel were in need of them. Second, and more importantly, we were not able to replace a part-time coder who left the project in January of 1984 to return to school. For these reasons we were not able to exhaust the full 975 persons in the 1980 parolee population. However, we wish to stress that we feel the data here are reliable, because each coder's list was (in effect) a 50% subsample of the original population. Thus, although our list was not complete, we feel that the quality of randomness within alphabetical listings was not lost.

From Ordinal To Numeric Judgments. Form I (see Appendix A) provides a summary of the preliminary and final risk assessment ratings which comprise the overall risk assessment process. As is evident from the form, there are rating differences within intermediate scales. For example, scale #4, the "adjusted general risk" scale, has nine categories of classification where scale #5, the "smooth function" scale, has only six.

Because each of these scales varies in terms of classification levels, and because - for analytical purposes - we need quantitative rather than qualitative measures of risk assessment, we took the adjusted general risk assessment measure (scale #4) as our baseline scale and ranked its categories from 1 to 9. Hence, "very low" became "1", "low-very low" became "2" and so forth. We then assigned paralleling ranks to each of the categories of the remaining scales, save those of the initial violence risk assessment and the supplemental risk assessment. These scales were not quantified because the "medium-low" categories of these scales did not permit clear weighting. It is the quantified measures of both FGRISK and FVRISK which were used in the analyses in this study. (See Form Ia. in Appendix A for the numerical ranking of all scales).

Methods of Analysis. To test the ability of the risk assessment tool to split cases into high and low levels of risk with a preponderance of frequencies in the lower level categories, frequencies will be run on both Final General Risk and Final Violence Risk. Second, predicted risk level outcomes will be crosstabulated with actual outcomes, as measured by

both arrests and additionally, arrests and convictions. Finally, where crosstabulations are significant, correlation coefficients will be run to determine the strength of association between predicted and actual outcomes.

Risk and Age Levels. An important aspect of the Iowa tool is its ability to predict risk levels within specific age groups, i.e., offenders age 18, offenders age 19, ages 20-24, ages 25-29 and ages thirty and above. To indicate the effects of age in the risk assessment process, our data will be run within age groups similar to those above.

II. MEASURES AND SAMPLE CHARACTERISTICS

Measures for Predictor Variables

The two major predictor variables in this study are those developed by Fischer, the Final General Risk Assessment Rating (FGRISK) and the Final Violence Risk Assessment Rating (FVRISK). The variable FGRISK is actually the sixth judgment in a 7 step process. The seventh judgment in the process is FVRISK, one's final violence risk rating.

Each of these variables has eight classifications which are ranked from "very low" to "super recidivist", although the FVRISK variable has an additional base line classification, i.e., "nil", where no risk of violence is presumed. Table 1 presents a review of these variables and their respective ratings.

TABLE 2

Ratings of Final General and Final Violence Risk Assessment

<u>Rating</u>	<u>Scale where Applicable</u>	
SR (super recidivist)	FGRISK	FVRISK
UH (ultra high)	"	"
VH (very high)	"	"
H (high)	"	"
HM (high medium)	"	"
LM (low medium)	"	"
L (low)	"	"
VL (very low)	"	"
N (nil)	FVRISK only	
Total Categories	8	9

In order to place an individual within either the FGRISK or FVRISK scales, it is necessary first to perform a series of "preliminary" risk assessments so that these judgments may in turn be conditioned by combinations of variables thought to influence one's ultimate potential for re-arrest on either

violent or non-violent charges. Hence, these "preliminary" risk assessments are (a) one's initial "general" risk rating and (b) one's initial "violence" risk rating.

Both of these preliminary risk assessments are heavily conditioned by the arrestee's age and history of prior arrests, although the initial violence risk assessment rating is also conditioned by the type of "current offense" one has, that is, whether one's offense is against property or persons.

After these initial judgments are made, they are subjected to a series of three "smoothing" or "refining" techniques, i.e., assessment frameworks which incorporate additional variables into the judgment process. Final "general" and final "violence" risk assessments, are then made. The tracking forms presented in appendix A of the report serve to illustrate the increasingly complex insertion of variables into the final general and final violence risk assessment ratings.

Additional Predictor Variables. In addition to the independent variables of FGRISK and FVRISK, five other variables were also examined as predictors of parole outcomes. These variables were scored dichotomously and included:

- (a) the presence (no, yes) of concurrent sentences
- (b) the presence (no, yes) of consecutive sentences
- (c) the presence (no, yes) of a mental health examination
- (d) the presence (no, yes) of major misconduct in jail, and
- (e) escape from jail (no yes).

Measures for Outcome Variables

Three measures were used as indicators of parole outcomes, i.e., risk "successes" or risk "failures". The first and most elemental of these measures was the variable "total number of arrests after release to parole". In the present data set this variable ranged from zero to four with a mean of .79 and a standard deviation of .89. This first measure entailed arrests only and not arrests with convictions and/or revocation of parole.

Our second measure of parole outcome (risk success or failure) was the variable "total number of charges", i.e., the charges accrued by an individual in the course of arrest(s). Because individuals can theoretically experience more than one arrest and still be in the community, and because multiple charges can be brought against an individual in any one arrest, this variable ranged from zero to six with a mean of 1.54 and a standard deviation of 1.3. Additionally, this variable was split into its component parts so that charges against persons and property per arrest could be assessed.

Our third measure of parole outcome(s) was the variable general outcome, or GENOUT as it came to be termed. Because we sought a measure which evidenced an ordinal based index of the severity of parole failure, we computed a GENOUT scale from several individual measures: arrests, technical violations, convictions and revocations. This scale ranged from zero to five with the value zero indicating a perfect outcome i.e., no arrest and no technical violations. In contrast, the value five indicates the most negative of outcomes, i.e., arrest, conviction and revocation. In our data the mean of this scale is 2.15 with a standard deviation of 1.98. Table 3 presents the data for this scale.

TABLE 3

FREQUENCIES FOR GENOUT
(General Outcome Measure)

Value	Frequencies	%
0 (No violations of any type)	193	33.7
1 (Technical violations only; arrests, no convictions and no)	56	9.8
2 (Arrests, but no convictions and no revocations)	102	17.8
3 (Convictions, but no revocations)	56	9.8
4 (Revocations due to technical violations)	21	3.7
5 (Revocations due to arrest and convictions)	145	25.3
TOTAL	573	100.1*

*Percents do not add to 100 because of rounding differences.

Sample Characteristics

Age. The mean age of individuals paroled in the District of Columbia in CY 1980 was 30.5 years with a standard deviation of 7.8 years. Of these individuals 22.5% were between the ages of 19 and 24, 34% between the ages of 25 and 29 and 33.7% between the ages of 30 and 39. A small proportion (9.8%) fell between the ages of 40 and 64, and in this sample, no individuals were less than 19 years old.

Race and Sex. For all intents and purposes race and sex were not variables in this study, although in this sample, 5.7% of the parolees were female.

Education. As measured by the number of years of school completed by an individual, the mean level of education for this population is 10.0 years (s.d.=1.8). As measured by the attainment of a high school diploma, however, the population's educational level is low. Just more than eleven percent (11.2%) have realized this goal. Overall, 28% of the population has completed only elementary levels of education; an additional 21.5% have completed their middle (7-8) years, and 20.3% their ninth, tenth and eleventh years. A small proportion (19%) is reported to have completed 4 years or less of college level work.

Marital Status. "Never married" is the single most reported classification for the marital status of this study's sample members. Almost seventy percent of the sample hold this as their "marital status". In contrast, 16.4% of the sample was married at the time of parole and the remaining 14.7% were either divorced, widowed or reported to have been living with a "common law" spouse.

Dependents. The average number of dependents for sample members in this study is 1.8 (s.d.=1.7).

Employable Skills. Only 38.3% of the sample members are reported to have an "employable skill". The remaining sample members have (according to records) either no employable skill (44.23%) or are persons for whom data on this variable are unavailable (17.3%).

Similarly scant are the employment statuses of parolees at the time of their "current" or "presenting" offense, i.e., the offense for which they were incarcerated and in the light of which they are now being paroled. Study data suggest that slightly more than one half (51.8%) of the District's 1980 parolees were employed at the time of their presenting offense, whereas 27% were unemployed. Data are not available for the remaining 21%.

Adult Convictions, Incarcerations and Commitments. The mean number of prior adult convictions for the members of this sample is 3.2 with a standard deviation of 4.1. In contrast, the mean number of adult jail terms is 1.6 (s.d.=2.4) and for prior prison commitments it is 1.0 (s.d.=1.2). Overall, the mean number of incarcerations for sample members is 2.0 (s.d.=2.5) and the mean number of prior convictions (both juvenile and adult) is 4.0 with s.d.=4.4.

Known Aliases and History of Substance Abuse. Approximately one fourth (23%) of the sample members are known to have aliases, and approximately 70% are reported to have some form of substance abuse history. Additionally, of persons with a substance abuse history, 71.6% are reported as having a history of narcotic rather than non-narcotic drug usage.

Current or Presenting Offense. Of obvious importance in this study is the variable of presenting or current offense, understood here as that offense(s) for which a person was convicted and in terms of which an individual is now paroled. Table 4 presents an overview of data on current offense(s) for the parolees of this study. Because some offenses have extremely small frequencies, a good bit of rounding error occurs if one percentages by offenses only and not the larger categories of "offenses against persons", "offenses against property" and (residually) "other". Hence, the distribution of current offenses is done in terms of these larger categories with offenses against persons constituting the largest single offense category (37.4%). Offenses against property, constitute the second largest category (31.9%), and "other offenses" the smallest category (30.7%). Overall, robbery or assault to rob was the single most predominant offense with 23.3% of all offenses accounted for by this category.

TABLE 4

FREQUENCIES FOR CURRENT OFFENSES

A-1 Against Persons

1	<u>19</u>	Murder
2	<u>28</u>	Manslaughter
3	<u>7</u>	Rape
4	<u>7</u>	Attempted Rape
5	<u>5</u>	Sex Offense Agt Juvenile
6	<u>230</u>	Robbery or Assault to Rob
7	<u>19</u>	Aggravated Assault
8	<u>16</u>	Going Armed with Intent
9	<u>0</u>	Extortion
10	<u>39</u>	Other Offense Against Person

Total 370 Percent 37.4

A-2 Against Property

11	<u>94</u>	Burglary or Attempt
12	<u>32</u>	Motor Vehicle Theft
13	<u>32</u>	Larceny First Degree
14	<u>65</u>	Other Larceny
15	<u>36</u>	Stolen Property
16	<u>13</u>	Forgery
17	<u>3</u>	Bad Checks
18	<u>11</u>	Other Fraud
19	<u>2</u>	Embezzlement
20	<u>0</u>	Counterfeiting
21	<u>4</u>	Arson
22	<u>4</u>	Vandalism
23	<u>0</u>	Shoplifting
24	<u>19</u>	Other property offenses

Total 315 Percent 31.9

A-3 Other Offenses

25	<u>7</u>	OMVUI-1st offense
26	<u>0</u>	OMVUI-2nd or 3rd
27	<u>0</u>	Other Alcohol Related
28	<u>0</u>	Drug Related (Non-narcotic)
29	<u>54</u>	Drug Related (Narcotic)
30	<u>115</u>	Carrying a concealed weapon
31	<u>21</u>	Other weapons
32	<u>0</u>	Conspiracy
33	<u>2</u>	Offenses Against Public Morals
34	<u>7</u>	Offenses Against Public Authority
35	<u>97</u>	Micellaneous

Total 303 Percent 30.7

Grand Total 988 Total Percent 100%

*This table includes all cases (n=581)

Criminal History Variables

Prior Arrests. Data from the District's Board of Parole records indicate that only a small proportion (11.3%) of 1980 parolees had no history of arrests prior to their presenting or current offense. Rather, 4.5% had at least one arrest prior to their current or presenting offense, 35% had between two and six prior arrests, and more than a third (36%) had between seven and fifteen arrests prior to their presenting or current offense. Nearly thirteen percent (12.9%) had more than 15 arrests prior to their presenting or current offense. By way of overview the mean number of prior arrests for this sample is 8.3 with a standard deviation of 6.9.

Juvenile History Variables. Means for the variables "number of juvenile convictions" and "number of juvenile commitments" evidence considerably lower levels of potentially criminal activity than does the prior arrest variable described above. For the variable "number of juvenile convictions" the mean is 1.4 (s.d=1.7); for the "number of juvenile commitments" the mean is .93 with a standard deviation of 1.0.

These figures are consistent with the median and mean values for the "age of sample members at first arrest". In this sample the median age at first arrest was 18 whereas the mean was 19. (The standard deviation here was 6.3).

III. FINDINGS AND DISCUSSION

Findings For General Risk Levels

FGRISK: The General Distribution. The first and most fundamental expectation of this study is that the Fischer Iowa tool will split cases into low and high levels of general risk with a disproportionately high number of cases falling in low rather than high risk levels. Table 5 presents the data to measure this expectation.

TABLE 5

FREQUENCIES ON FGRISK

Risk Rating	Frequencies	%
SR	27	4.7
UH	47	8.2
VH	121	21.1
H	95	16.6
HM	59	10.3
LM	124	21.6
L	71	12.4
VL	29	5.1

Total

N= 573

100%

As the data in Table 5 indicate, FGRISK does not distribute in the expected manner. Rather, the largest number of cases falls within high rather than low risk levels. In terms of specifics 50.6% of the sample falls within high to super recidivist levels, 10.3% in the high-medium category, and 39.1% in the very-low to low-medium category. These figures stand in marked contrast to Fischer's data which evidence an altogether opposite distribution, i.e., a preponderance of cases in low rather than high levels of risk assessment.⁶

Predicted and Real outcomes. It was noted earlier that the mean number of arrests upon release for the members of this sample is .79. When arrests after release are dichotomized into zero/one values (i.e., no arrests vs. arrests) and cross-tabulated with levels of FGRISK, the distribution reflects the pattern predicted by Fischer. That is, the proportion of parole failures increases as risk levels increase. Thus, 72% of persons classified as either "very low" or "low" risk remained arrest free, as did just under half (44.8%) to be of "medium" risk levels. In contrast 62.0% of "high" and "very high" risk cases were arrested, as were 67.1% of persons predicted to be of "ultra-high" or "super-recidivist" classes. These proportions reflect the trend expected from Fischer's research, although they differ markedly from the proportions evidenced by Fischer.

⁶See Table 4 of Fischer's 1980 discussion for this data.

TABLE 6

**Recidivist Status By Grouped Risk Levels
Final General Risk**

Recidivist Status	RISK ASSESSMENT LEVEL			
	Low (1,3) %	Med (4,5) %	High (6,7) %	Super (8,9) %
No	72.0 (72)	44.8 (81)	38.1 (80)	32.9 (25)
Yes	28.0 (28)	55.2 (100)	61.9 (130)	67.1 (51)

N= 573 Chi-square statistic= 93.7 df=2 p=.05

Where our lowest levels of predicted risk show a 72/28 percent success/failure ratio, Fischer's data show a much stronger success/failure ratio. Only 8.2% of his "very low" risk cases were re-arrested (within 18 months), and only 14.6% of his "low" risk case were re-arrested. While our Ns for these categories are too small to permit meaningful direct comparisons, our figures do not tally well with those cited by Fischer as more than 25% of our "low" risk individuals fail parole by virtue of re-arrest. Similarly, our figures for "super" risk levels depart from Fischer's. Fischer reports a 12/88 percent success/failure ratio among his "super recidivist" cases, and a 21/79 percent success/failure ratio among his "ultra high" risk case. Thus while our data parallel the trend expected from and evidenced by Fischer's work, they do not do so with the rigor evidenced in Fischer's data.

Questions of Re-coding. It might be assumed that the collapsing of our eight risk categories into four has in some way affected the distribution of arrests within risk levels. This is not the case; rather, the collapsing simply highlights the distribution found in the raw data for re-arrests. (See Table 7 below for re-arrests within 18 months of release for all eight risk level categories).

TABLE 7**Number and Percent of Persons
Rearrested within 18 Months of Release**

<u>Rearrested within 18 Months of Release</u>	<u>Frequency</u>	<u>Number Arrested Within 18 Months</u>	<u>Percent</u>
Super Recidivist	28	16	57.1
Ultra High	48	32	66.6
Very High	118	74	62.7
High	95	51	53.7
High Medium	57	35	61.0
Low Medium	124	54	43.5
Low	71	20	28.2
Very low	29	8	27.5
Total		570	290

Findings For Violent Risk Levels

FVRISK: The General Distribution. In contrast to the distribution of FGRISK, FVRISK does distribute as expected. The majority of cases (65.6%) fall within "nil" to "low medium" risk levels. Alternatively, 8.7% of the cases fall within the "high-medium" category, and the remaining 25.7% in the "high" to "super recidivist" categories. (See Table 8 below).

TABLE 8
FREQUENCIES ON FVRISK

Risk Rating	Frequencies	%
SR	54	9.4
UH	82	14.3
VH	8	1.4
H	3	0.5
HM	50	8.7
LM	176	30.7
L	60	10.5
VL	126	22.0
N	14	2.4

N= 573

99.9%

Again, the recoding of FVRISK into three major categories (viz., "nil", "very low", and "low"; "medium-high" and "medium"; and "high" through "super recidivist") describes a situation where the proportion of parole failures increases as the risk of violence increases (see Table 9 below). Seventy one percent of persons classified as high or super-high were rearrested. Over 50% of the persons who scored nil to low on violence risk levels were not in fact rearrested. The chi-square calculated for this table was significant (at the .05 level with 2 degrees of freedom) indicating an association between the two variables. However, as the figures in Table 10 on page 23 show, this association is weak, only .2 regardless of outcome measures. It would appear then, that in spite of some directionality, the FVRISK measure does not predict arrests or general outcome well.

TABLE 9

**Recidivist Status By Grouped Risk Levels
Final Violence Risk**

Recidivist Status	RISK ASSESSMENT LEVEL		
	Low (1-3) %	Med (4-5) %	High/ Super High (6-9) %
No	59.0 (118)	43.0 (98)	29.0 (42)
Yes	41.0 (82)	57.0 (130)	71.0 (103)

100.0

100.0

100.0

N= 573

Chi-square= 36.9

df=2

p= .05

Discussion

Both the preliminary and arrest based findings of this study raise more questions than they answer. In particular the findings of this study raise three questions: First, how does one explain the unanticipated distribution of FGRISK in the present sample? For example, is this distribution a product of the population as a whole, or is it a function of the "tracking system" which generates classification into high rather than low levels of predicted risk.

Second, to what extent may specific factors of the risk assessment process contribute to final risk judgments? That is, are there either (a) particular variables which better predict arrest outcomes than the FGRISK and/or FVRISK scales; or (b) are there subscales within the risk assessment process which correlate more highly with outcomes than the final assessment scales?

Finally, a question must be raised about the validity of the FVRISK scale for the population at hand, for although this variable did distribute in the manner expected it did not correlate with any of the outcome measures used in this study.

FGRISK: A Reconsideration. The desirable end of the FGRISK variable, it has been argued, is a preponderance of cases falling in low rather than high levels of predicted risk. Our data, however, reflect an opposite pattern and this requires some explanation.

One possible explanation for the unanticipated and "counterproductive" distribution of FGRISK in this study lies with the sample itself. That is, one might reasonably ask whether this population is not, in fact, a very high risk population. We suspect that this is in part true since (from the distribution of GENOUT) at least 52.9 percent of the sample experienced arrest after release to parole (categories 2,3 and 5 of the GENOUT scale), and 35.7% experienced arrest(s) which led to conviction and/or revocation. Indeed, to the extent that gross aggregate figures suggest success, the tool does predict, as the percentage of persons arrested roughly matches the percentage of persons predicted as high risk.

This fact notwithstanding, we think that the tool's essential "tracking system" does not fare well with this population, and that the question of the tool's real utility is still empirically open.

The process of assessing risk, it will be recalled, is multi-staged. Preliminary general and violent risk assessments are made, and these judgments are subjected to an increasingly discriminating set of circumstances borne of the combination(s) of other potentially influential variables. Certain characteristics of this study population, however, serve to deflect a large proportion of individuals into a "fast lane" for high risk assessments. In particular these characteristics are age, current offenses and the number of prison commitments.

The mean age of this sample is approximately thirty--with nearly 68% of the sample falling between the ages of 25 and 39. Additionally, of all "current charges" (see Table 4) robbery, burglary, and motor vehicle theft are among the most prevalent, and account for 36% of all charges.

Finally, other characteristics can also come into play, for as one reviews the "B" tracking forms of the preliminary risk judgments (see Appendix A), one finds that the three factors can immediately place one into the high risk class: being unmarried, having an early first arrest age, and having at least three prior incarcerations. Expressed somewhat more summarily, these "secondary" risk factors propel one into the "high" risk classification, even if that individual has only one prior conviction. These secondary risk factors run throughout this population. The bulk of the population is unmarried, has been incarcerated and is likely to have been arrested at an early age. (Although the mean for first arrest age is, in fact, 19, 43% have first arrest ages under 18). Because of these factors the likelihood of a high classification is strong, for the initial general risk assessment plays a vital part in the entire assessment process.

Similarly, the variable, "number of prior prison commitments", also comes into play, for it determines (1) preliminary general and violence risk assessments for persons 30 and older, and (2) all supplemental risk assessments. (See Forms B6, B7, C4 and D of Appendix A).

Because having only one prior adult prison commitment almost automatically places the bulk of this sample into an M/L classification on the preliminary violence risk assessment scale, and because most of our sample received a M/L rating on the supplemental risk scale, almost all of the adjusted risk ratings for persons of a high general rating remained high. In turn, this judgment affected remaining assessments--and particularly the final general risk assessment (FGRISK). We suspect that with a more stratified sample--a sample stratified on age, number of prior prison commitments and current offense, the FGRISK tool would predict more efficiently than it does and that the proportions expected from the tool would be evident.

The second question to be addressed in this discussion focuses on the preliminary judgments which comprise the final general and violent risk ratings, and here the issue is whether or not specific intermediary judgments better predict arrest outcomes. Data in Table 10 provide some means of addressing this question although again, the correlations are not as strong as one might wish.

TABLE 10

CORRELATIONS ON RISK LEVEL RATINGS,
GENERAL OUTCOME (GENOUT), AND ARREST OUTCOME (ARROUT)

RISK AND OUTCOMES	(1) <u>G-RISK</u>	(2) <u>AD-RISK</u>	(3) <u>SMOOTH RISK</u>	(4) <u>FINAL G-RISK</u>	(5) <u>FINAL V-RISK</u>	(6) <u>GENOUT</u>	(7) <u>ARROUT</u>
1 GRISK	XXX	.875	.589	.839	.626	.168	.148
2 ADRISK	.875	XXX	.569	.922	.774	.171	.130
3 SMOOTH RISK	.588	.569	XXX	.793	.588	.279	.231
4 FINAL G-RISK	.839	.923	.789	XXX	.813	.222	.199
5 FINAL V-RISK	.626	.775	.586	.813	XXX	.174	.165
6 GENOUT	.168	.164	.264	.222	.174	XXX	.716
7 ARROUT	.082	.145	.238	.199	.165	.716	XXX

As one can see from the above table, the correlations between intermediary risk scales provide the strongest associations. This merely exemplifies the validity existing "within" the tool. Nonetheless, none of the FGRISK OR FVRISK scales seem to correlate highly with the two arrest outcomes. Instead, it is the smoothing function which provides the strongest association with the outcomes mentioned above. This may be due to the fact that it is the smoothing function which takes into account the criminal history variables; specifically: age, prior arrest (s), first arrest age, number of commitments, incarcerations, convictions, history of narcotics use and type of offense.

Comparison of Outcome for the District of Columbia and Iowa. Because of our findings analyses were done to determine the similarities and/or differences existing between Fischer's final ratings and those of our study. For our analysis we examined the major criminal history elements mentioned above which contribute to the smoothing function process. Figures that follow provide percentage comparisons where the predictor variable FGRISK was recoded into three major categories of high, medium and low. (In this recoded variable high included super recidivist, ultra recidivist, very high, and high; medium included high medium and low medium; low included low and very low).

TABLE 11

D.C. FGRISK OUTCOMES AND IOWA GRISK OUTCOMES
(In Percents)

		<u>High</u>	<u>Medium</u>	<u>Low</u>	<u>Ns</u>
First Arrest Age before 18	Iowa	60.3	33.5	5.4	4222
	DC	71.7	23.5	4.9	247
Prior Adult Commitments	Iowa	50.9	34.7	14.4	1387
	DC	58.3	34.5	7.1	168
Prior Incarcerations	Iowa	55.5	32.6	11.9	4321
	DC	56.1	34.9	8.4	275
Prior Arrest	Iowa	42.2	35.9	21.9	8034
	DC	55.9	33.3	10.6	508
Prior Narcotics Only	Iowa	64.2	25.8	10.0	1022
	DC	61.9	28.3	9.8	286
Prior Convictions	Iowa	42.2	34.7	23.1	5471
	DC	55.4	35.1	27.0	370

*Persons with one or more commitments and convictions.

As one can see from these percentages, the District has a considerably higher proportion of individuals (than does Iowa) in virtually all of the major variables used in the tracking system. These proportions suggest, therefore, that these variables contribute to the "lop-sided" FGRISK distribution observed in our data. However, they do not explain the failure of the FGRISK scale to predict arrest outcomes.

Comparison of Outcomes for D.C. Violators Vs. Non Violators.

In an effort to understand some of the dynamics at work in the failure of FGRISK to predict arrest outcomes for our study sample, we turned our attention to the characteristics of sample members to see if factors within the population distinguished between persons of high and low risk and the likelihood of rearrest. These factors are presented in Table 12.

TABLE 12

	<u>PERSONS WITH NO SUBSEQUENT VIOLATIONS</u>	<u>PERSONS WHOSE PAROLE WAS REVOKED</u>
Age at First Arrest:	Mean: 20.61 Median: 19.00	Mean: 17.94 Median: 18.00
Age at Parole:	Mean: 32.06 Median: 30.00	Mean: 28.84 Median: 27.00
Prior Convictions:	Mean: 3.86 Median: 2.00	Mean: 4.36 Median: 3.00
Prior Incarcerations:	Mean: 2.18 Median: 1.00	Mean: 2.97 Median: 2.00
Employed at Arrest:	Yes: 73.0% No: 27.0%	Yes: 62.0% No: 38.0%
Years in School:	Mean : 10.06 Median: 10.00	Mean: 10.10 Median: 9.00
Narcotics Problem Only:	Yes: 45.0% No: 55.0%	Yes: 60.0% No: 42.0%
History of Alcohol/Drugs:	Yes: 10.0% No: 90.0%	Yes: 8.0% No: 92.0%

As the reader will note, a comparison of medians in this table suggests that violators and non-violators are quite similar. Indeed, they appear to differ in only four areas: age at parole, the number of prior convictions, employment level at presenting arrest (employed vs. unemployed), and the presence of a narcotic drug problem (as contrasted with a history of alcohol combined with drugs). However, none of these factors correlates highly with the likelihood of rearrest. As each factor was run against rearrest measures correlations remained in the area of .15 to .25.

FGRISK and Age Levels. Earlier in this study we noted that age should prove an important factor in the prediction of arrest outcomes relative to assessed risk levels. This expectation was premised upon Fischer's data which indicate that younger persons pose a greater risk for rearrest than do older persons as they have (in effect) criminal career time ahead of them. Our data lend only slight support of this expectation. When correlatons were run between FGRISK and our GENOUT and arrest outcome variables with controls for age (under age 25, between 25 and 30 and greater than 30) we found only that (1) the correlation between FGRISK and GENOUT is low (.29) among persons under 25 and (2) it is virtually non-existent among persons over 25 (The Pearson's was less than .15 when the data were run in the older age categories). Similarly, our correlations were quite low when other outcome measures were used.

FVRISK and Arrests for Violent Offenses. Data in Table 10 suggest a low association between FVRISK and parole outcomes: a corrlotation of .22 between FVRISK and GENOUT and a correlation of .199 between FVRISK and recidivism per se. To tap the extent to which FVRISK predicted arrests for violent offenses, we correlated FVRISK with A2, our variable name for type of offense at arrest (other vs. property vs. violent). This run showed no association between FVRISK and type of offense at arrest, as the Pearson's r was less than .15.

IV. SUMMARY AND CONCLUSIONS

The purpose of this research has been to test the feasibility of the Iowa risk assessment tool as a means of predicting parole outcomes in the District of Columbia. The Iowa tool is constructed so that one may classify offenders into two separate scales of risk: (1) the Final General Risk of recidivism--which reflects the probability of new criminal charges and/or escape, and (2) the Final Violence Risk of recidivism--which assesses the probability of arrest for a violent offense. For our purposes, therefore, we classified individuals into both final general and final violence risk levels so that comparisons could be made between risk levels and actual parole outcomes.

Because this tool has been used successfully in the state of Iowa on samples involving thousands of probationers and parolees, we expected that it would prove a successful and efficient means of identifying candidates likely to achieve a successful parole within the District's correctional system. Further, because the tool purports to identify individuals of previously unknown low risk level--through the use of a series of empirically constructed scales--we expected that our data would parallel Fischer's in that more than half of the study sample would emerge as candidates of "low" rather than "high" recidivist risk.

Applications of the Iowa risk assessment tool to the District's parolee population shows first that our data do not distribute among general risk levels as expected. That is, we do not find a preponderance of cases falling in low risk levels.

Second, our data show that in spite of a "skewed" distribution, there is a very low correlation between our predicted and real parolee outcomes. Specifically, as we ran correlations between final general risk ratings and our two measures of parolee outcomes (recidivism, defined as arrest vs. no arrest and GENOUT, a scale ranging from a low of "no violations at all" to a high of "revocation because of arrests and convictions") we found only low correlations, i.e., correlations of .3 or less

Our analysis of final violence risk ratings and parole outcomes was no more enlightening than our work on final general risk ratings. Although our data reflected a preponderance of "low" violence risk individuals, our correlations between FVRISK and parole outcomes were also low. More importantly, when we attempted to correlate FVRISK with types of arrest (violence vs. property vs. other) we found, again, correlations in the area of .00 to .3.

Why does the Iowa risk assessment tool appear not to work on data from the District of Columbia?

In our attempt to answer this question we split the FGRISK and FVRISK scales into their component parts to see if any one portion or set of scale variables would increase our understanding. These efforts proved fruitless, however, as we turned our attention instead to the search for population differences between "non-violators" and "violators" (i.e., persons with no parole violations of any type and persons whose parole had been revoked because of arrests and convictions).

Our comparisons failed to show any major differences save that of a greater tendency for violators to have a narcotic drug problem. However, comparisons between violators and non-violators failed to show major differences and evidenced instead a relatively homogenous population.

There are at least two responses that one may make to the findings of this study. First--and we have pointed this out in the body of the text--it is possible that the Iowa classification system simply doesn't work in the District because it relies heavily on certain key variables (e.g., prior convictions, prior incarcerations, prior adult prison commitments) which are not germane to our study population. This is an empirically open question and one which may be addressed if future "risk assessment" research in the District employs samples stratified on such variables as those noted above. Perhaps the weakness of our findings lies less with the tool and more with the study and its distinctive characteristics.

A second response one may make to our findings transcends the traditional boundaries of criminal justice research and addresses instead the type of support systems which violators and non-violators have available to them.

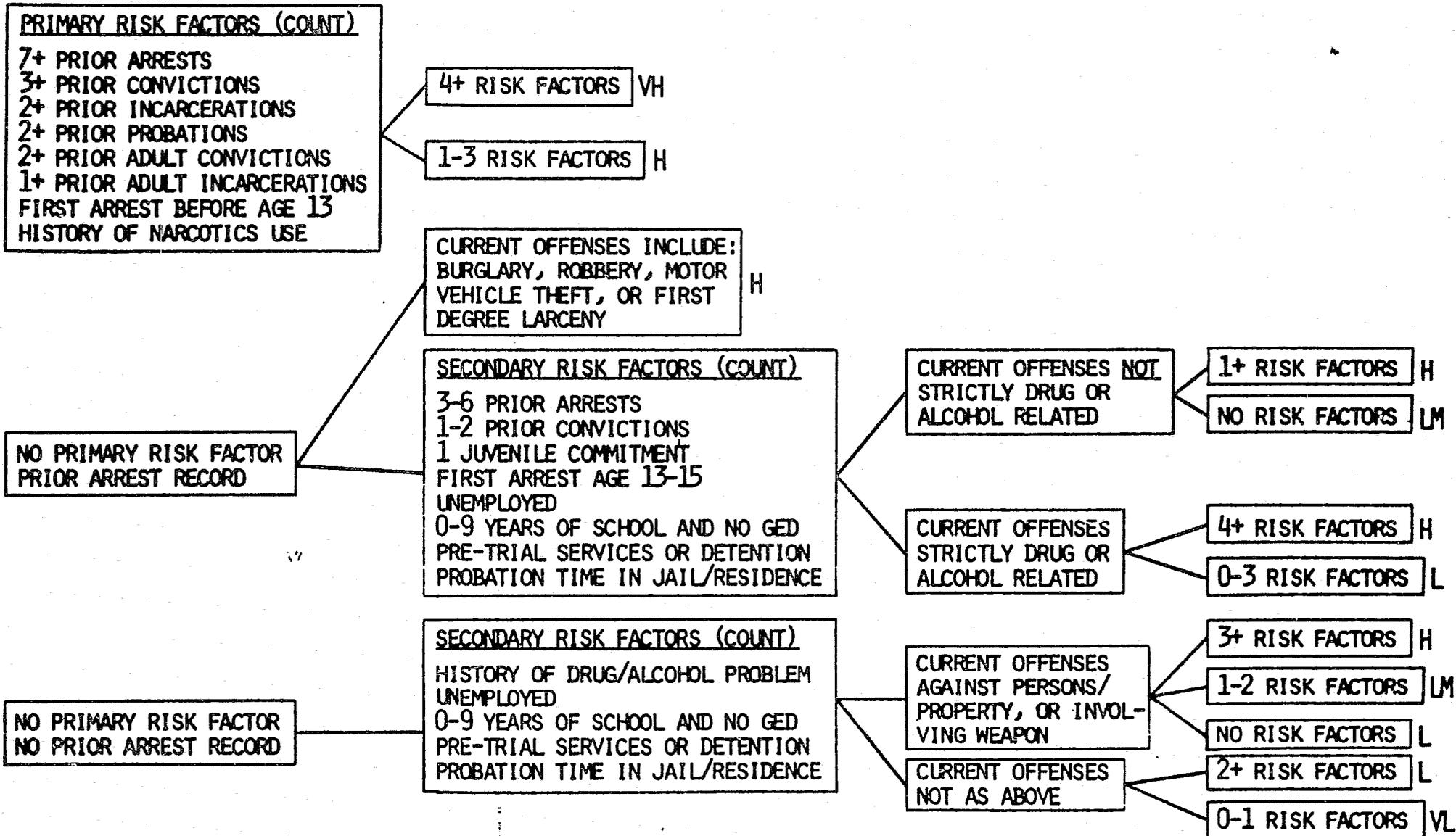
Because violators and non-violators appear to differ little in terms of background and criminal justice characteristics, and because they are all subject to similar treatment by the criminal justice system (save where variations arise as a result of new charges) it is possible that parole success or failure depends on social variables quite distinct from the criminal justice system and that are not enumerated in existing risk assessment measures.

The extent of post-release support systems that contribute to a parolee's ability for re-socialization and escape from the cycle of criminality may be salient in parole outcomes. Developing measures that tap such factors could enhance future risk assessment research.

APPENDIX A

Iowa Code And Tracking Forms

**OFFENDER RISK ASSESSMENT
STATE OF IOWA
GENERAL RISK OF RECIDIVISM
OFFENDERS CURRENTLY AGE 18**



OFFENDER RISK ASSESSMENT
 STATE OF IOWA
 GENERAL RISK OF RECIDIVISM
 OFFENDERS CURRENTLY AGE 19

PRIMARY RISK FACTORS (COUNT)
 7+ PRIOR ARRESTS
 3+ PRIOR CONVICTIONS
 2+ PRIOR INCARCERATIONS
 2+ PRIOR PROBATIONS
 2+ PRIOR ADULT CONVICTIONS
 1+ PRIOR ADULT INCARCERATIONS
 FIRST ARREST BEFORE AGE 13
 HISTORY OF NARCOTICS USE

4+ RISK FACTORS VH
 1-3 RISK FACTORS H

-66-

NO PRIMARY RISK FACTOR
 PRIOR ARREST RECORD

SECONDARY RISK FACTORS (COUNT)
 5-6 PRIOR ARRESTS
 1 JUVENILE COMMITMENT
 FIRST ARREST AGE 13-17
 UNEMPLOYED
 0-9 YEARS OF SCHOOL AND NO GED
 PRE-TRIAL SERVICES OR DETENTION

CURRENT OFFENSES INCLUDE:
 HOMICIDE, RAPE, ROBBERY,
 AGGRAVATED ASSAULT, BURGLARY,
 MOTOR VEHICLE THEFT, OR LARCENY

CURRENT OFFENSES
 NOT AS ABOVE

2+ RISK FACTORS
 0-1 RISK FACTORS
 4+ RISK FACTORS
 0-3 RISK FACTORS

NO PRIMARY RISK FACTOR
 NO PRIOR ARREST RECORD

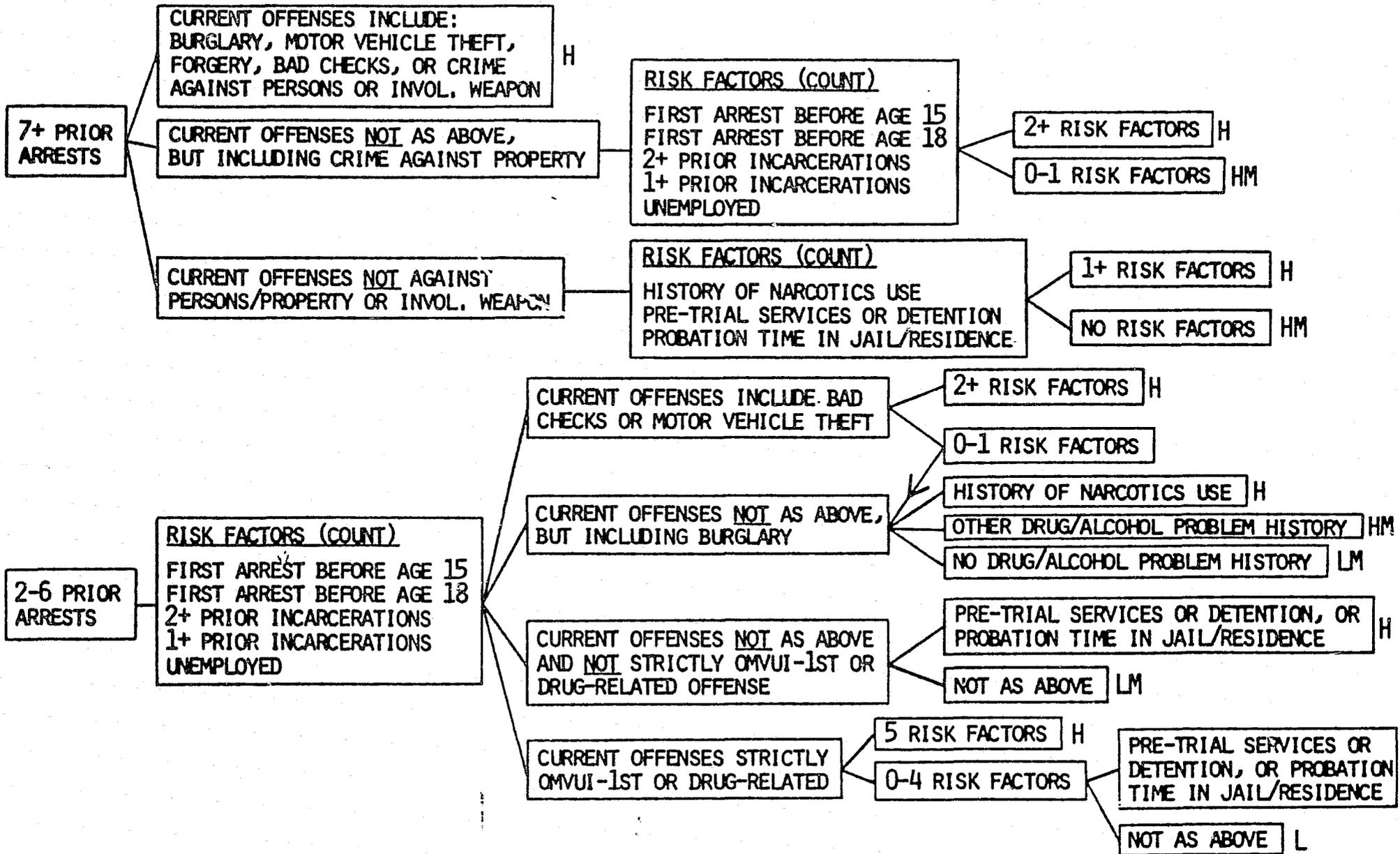
SECONDARY RISK FACTORS (COUNT)
 HISTORY OF DRUG/ALCOHOL PROBLEM
 UNEMPLOYED
 0-9 YEARS OF SCHOOL AND NO GED
 PRE-TRIAL SERVICES OR DETENTION
 PROBATION TIME IN JAIL/RESIDENCE

CURRENT OFFENSES AGAINST
 PERSONS/PROPERTY, OR
 INVOLVING WEAPON

CURRENT OFFENSES
 NOT AS ABOVE

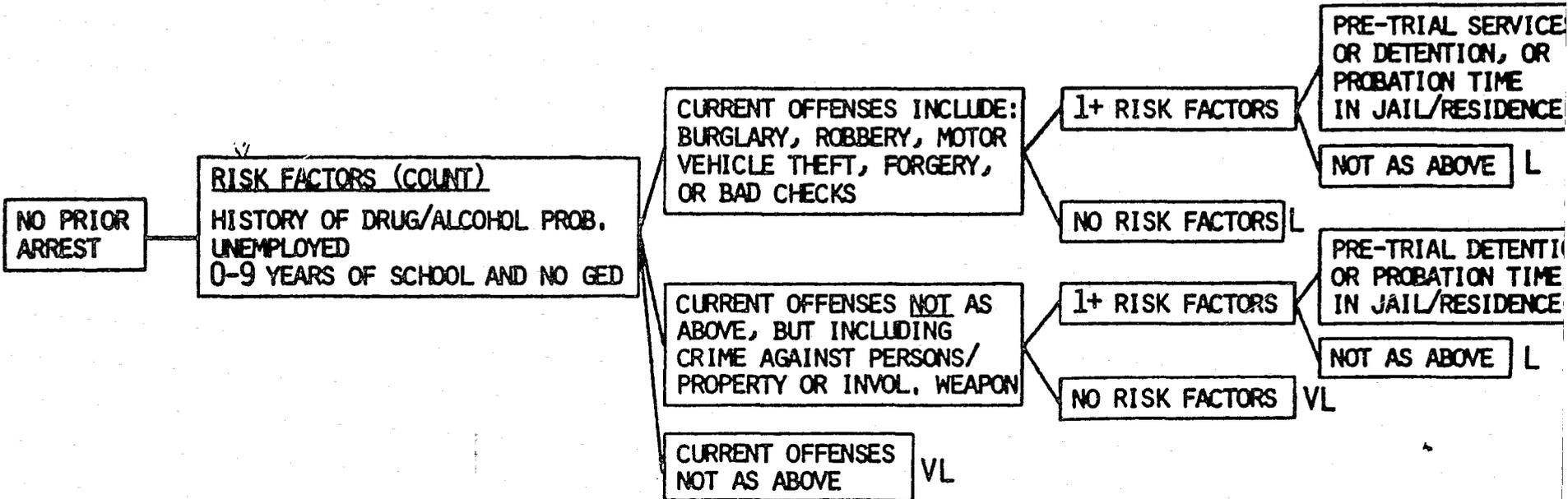
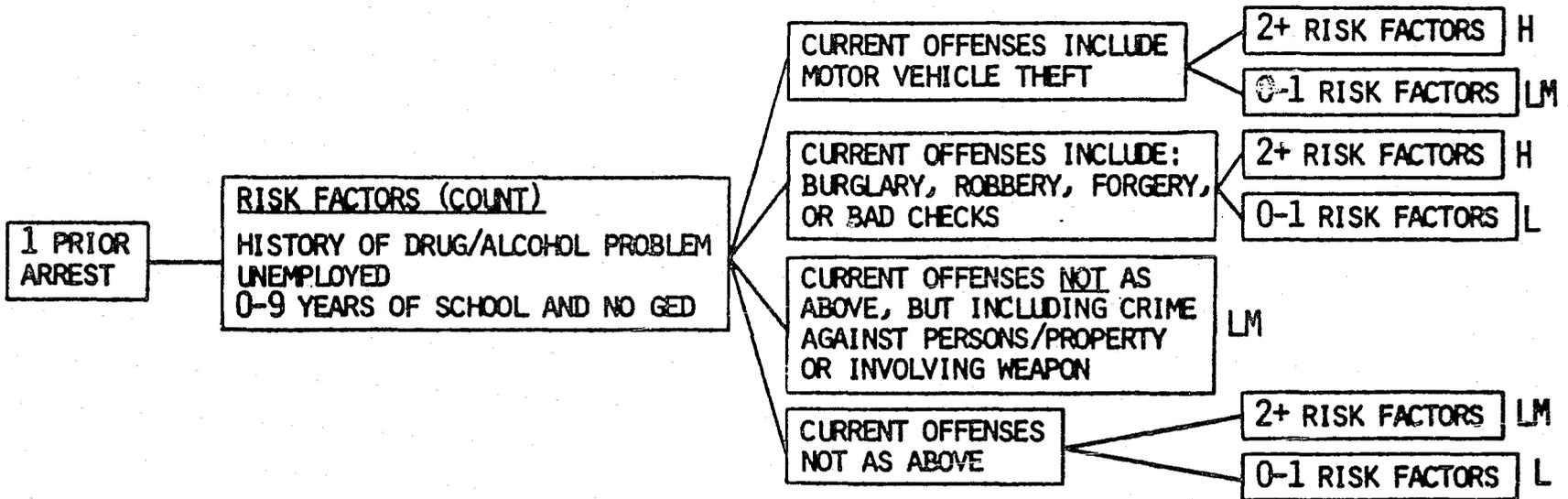
3+ RISK FACTORS
 1-2 RISK FACTORS
 NO RISK FACTORS
 2+ RISK FACTORS
 0-1 RISK FACTOR

OFFENDER RISK ASSESSMENT
STATE OF IOWA
GENERAL RISK OF RECIDIVISM
OFFENDERS CURRENTLY AGE 20-24



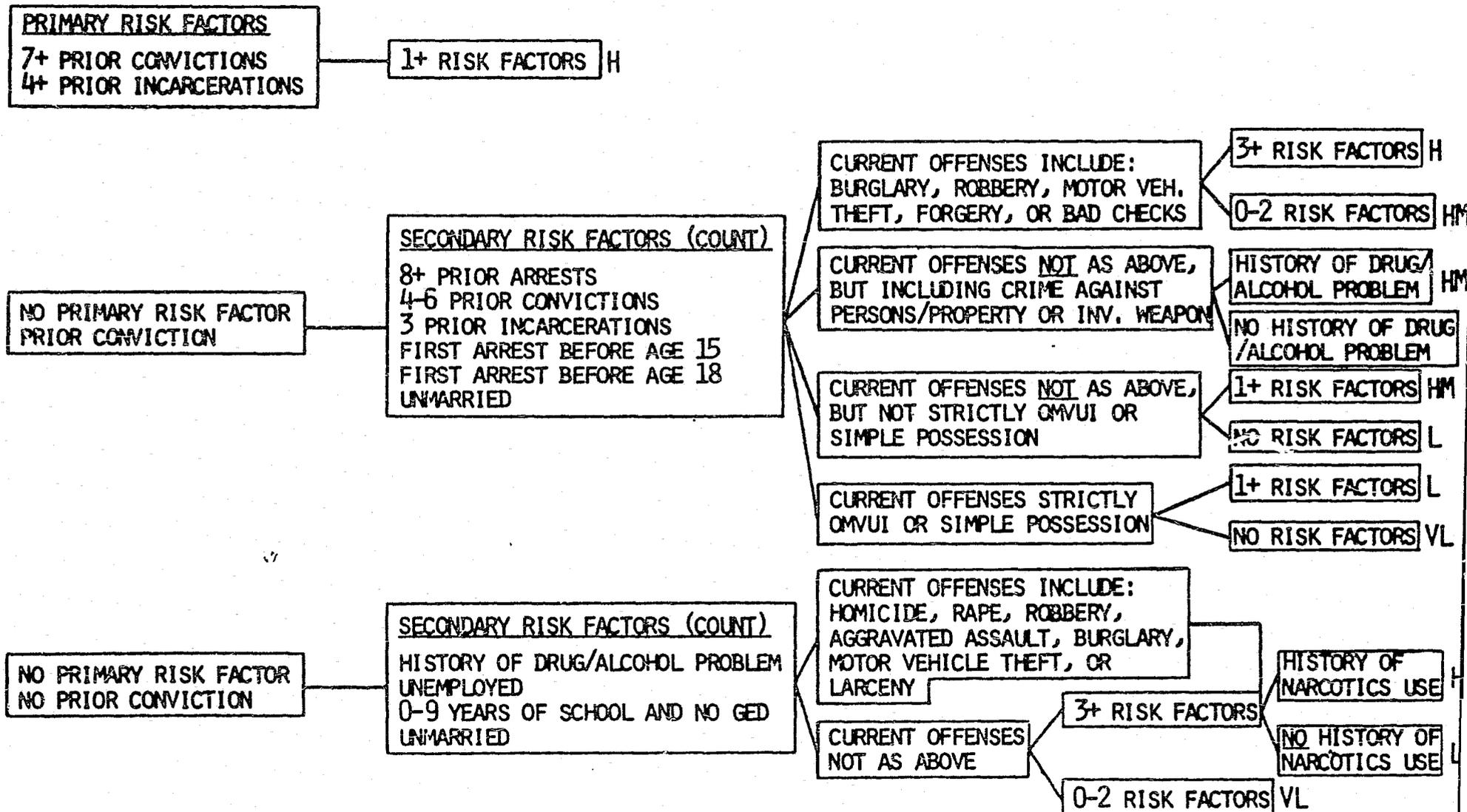
GENERAL RISK OF RECIDIVISM
OFFENDERS CURRENTLY AGE 20-24

(CONTINUED)

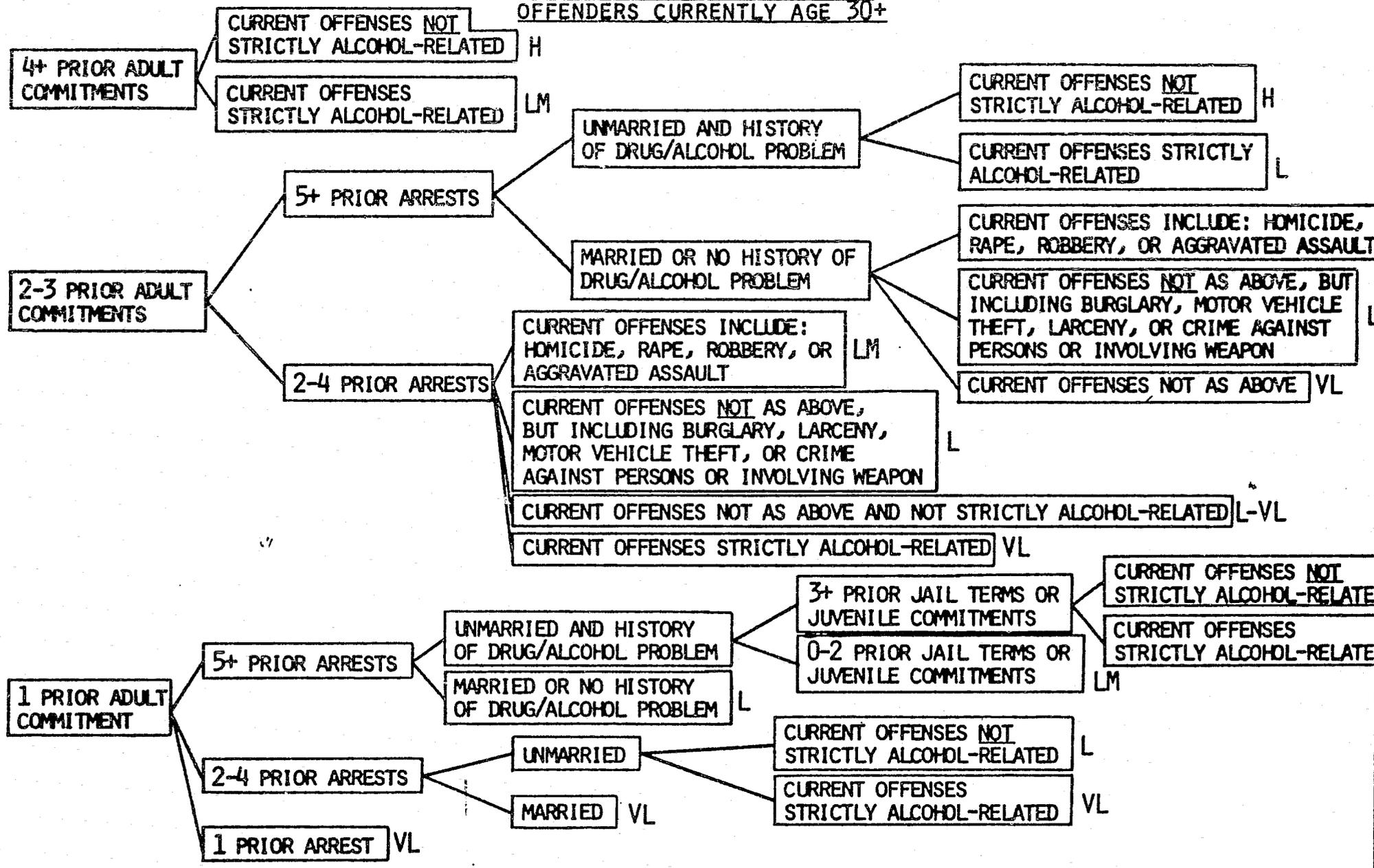


OFFENDER RISK ASSESSMENT
 STATE OF IOWA
 GENERAL RISK OF RECIDIVISM
 OFFENDERS CURRENTLY AGE 25-29

-102-

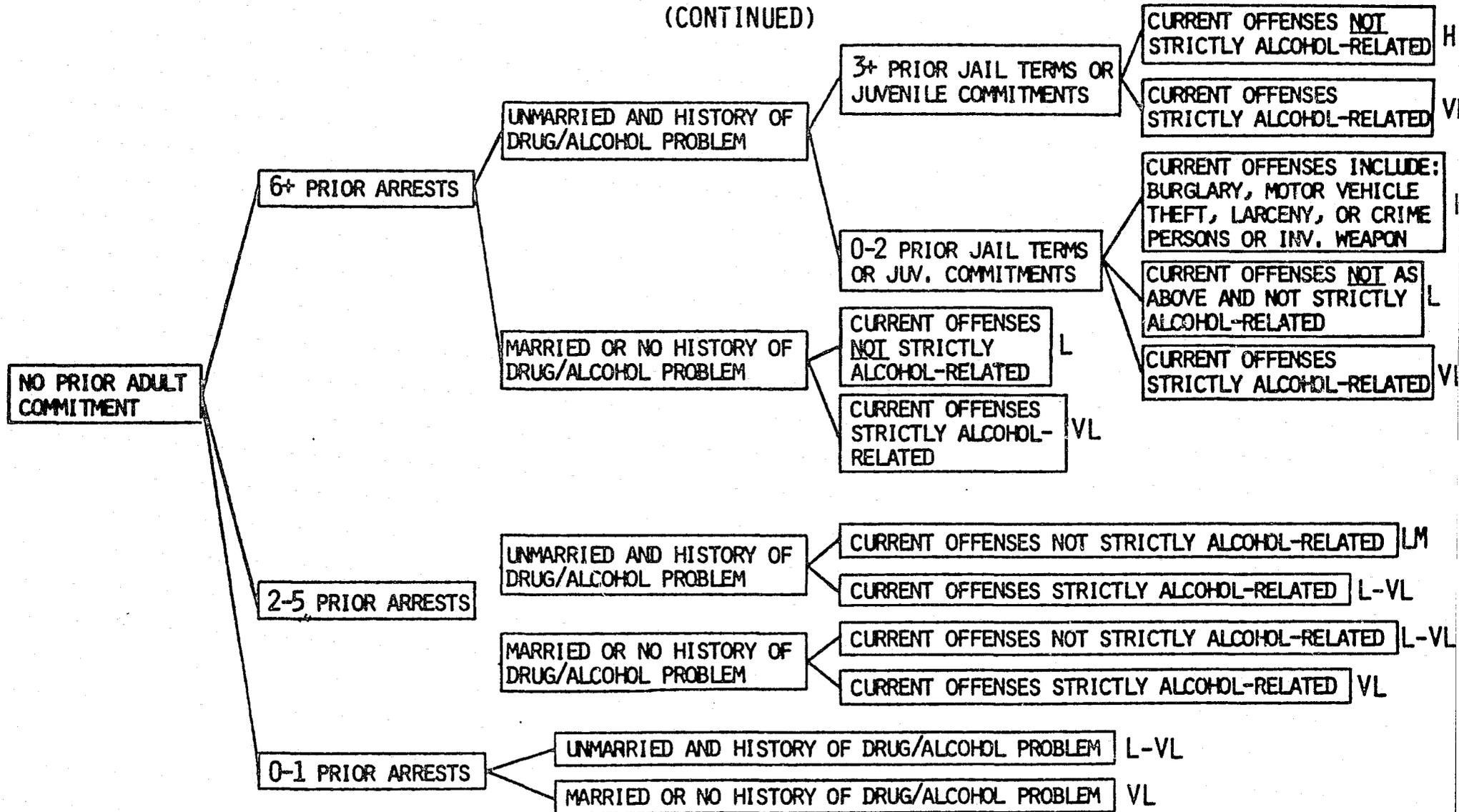


OFFENDER RISK ASSESSMENT
 STATE OF IOWA
 GENERAL RISK OF RECIDIVISM
 OFFENDERS CURRENTLY AGE 30+

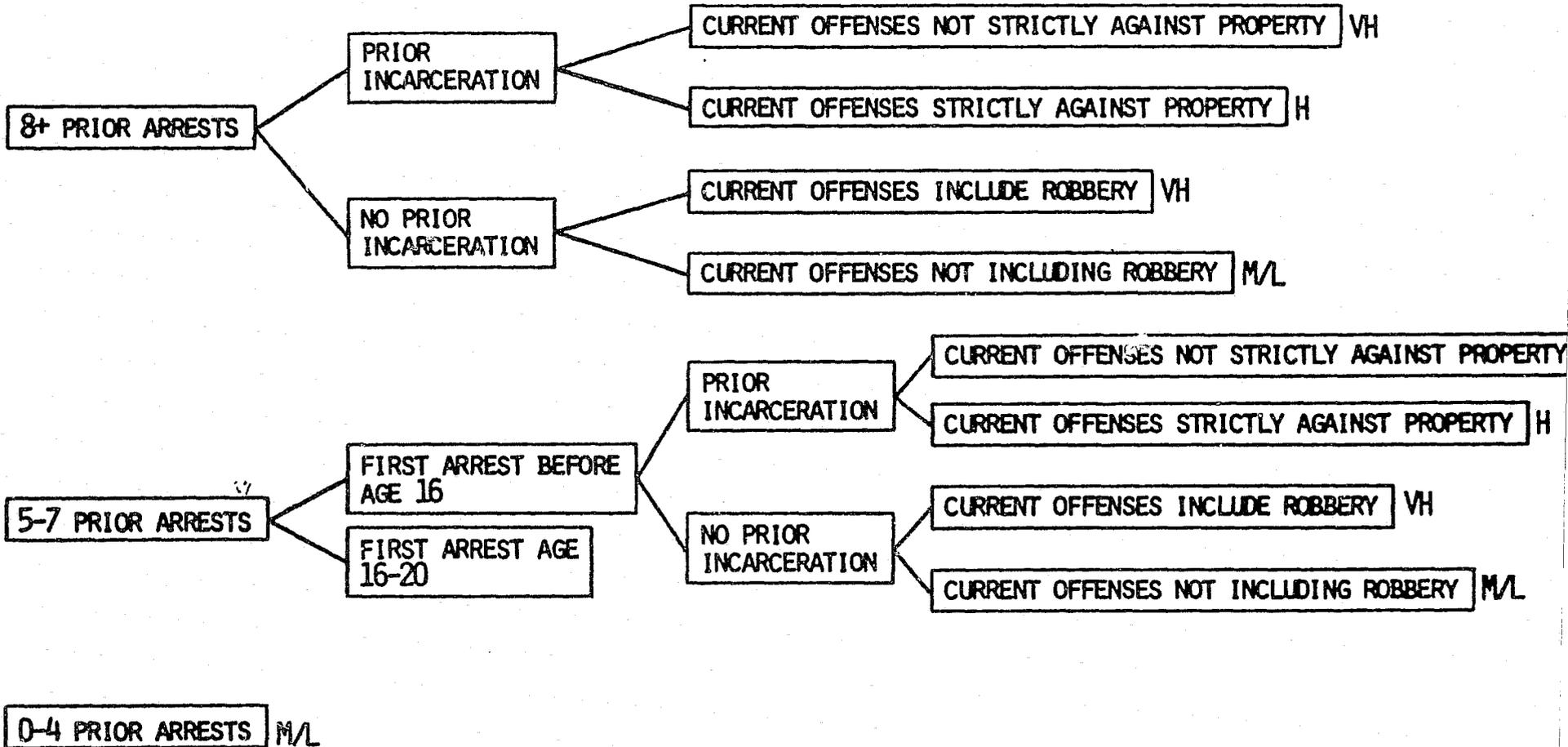


GENERAL RISK OF RECIDIVISM
OFFENDERS CURRENTLY AGE 30+

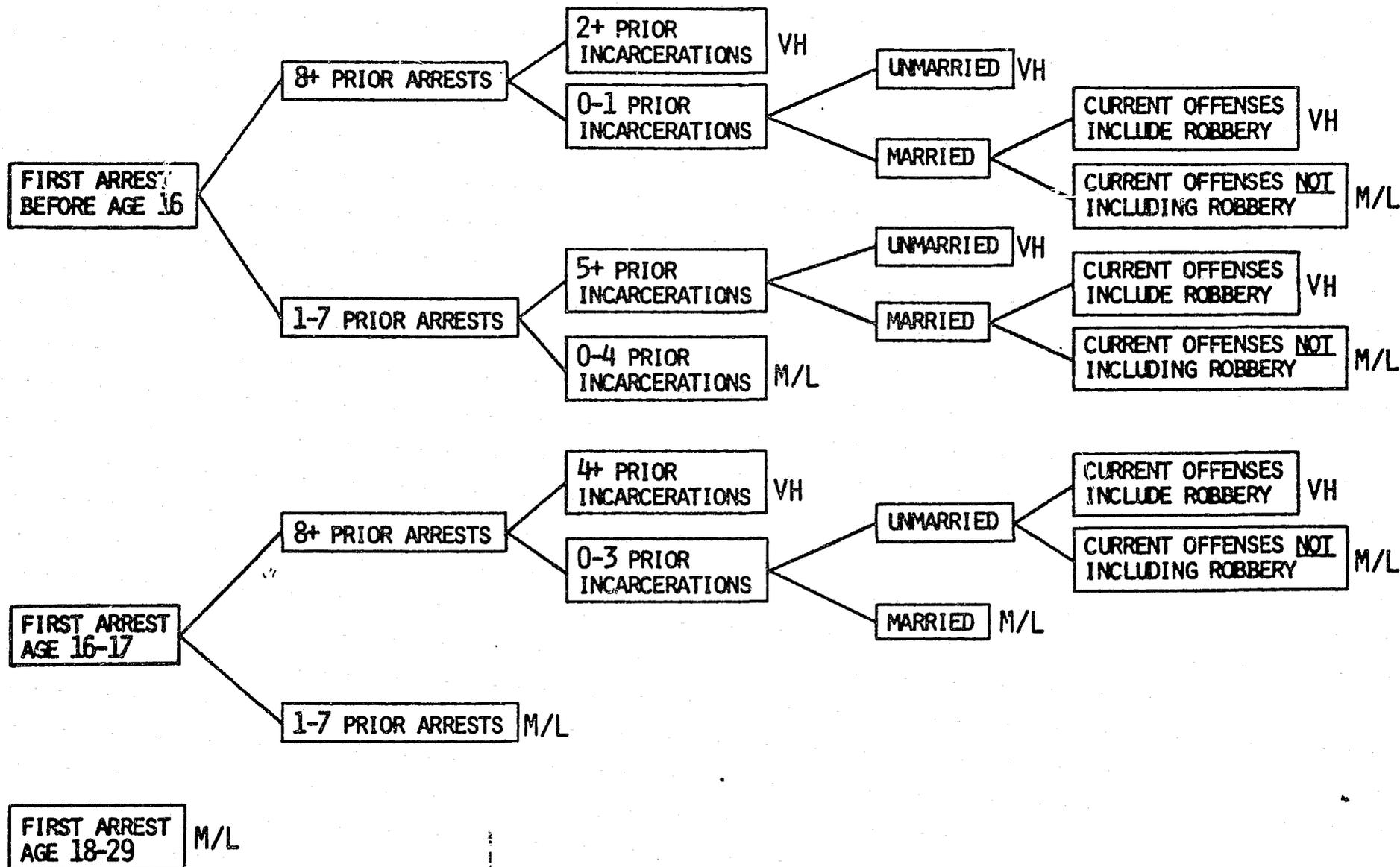
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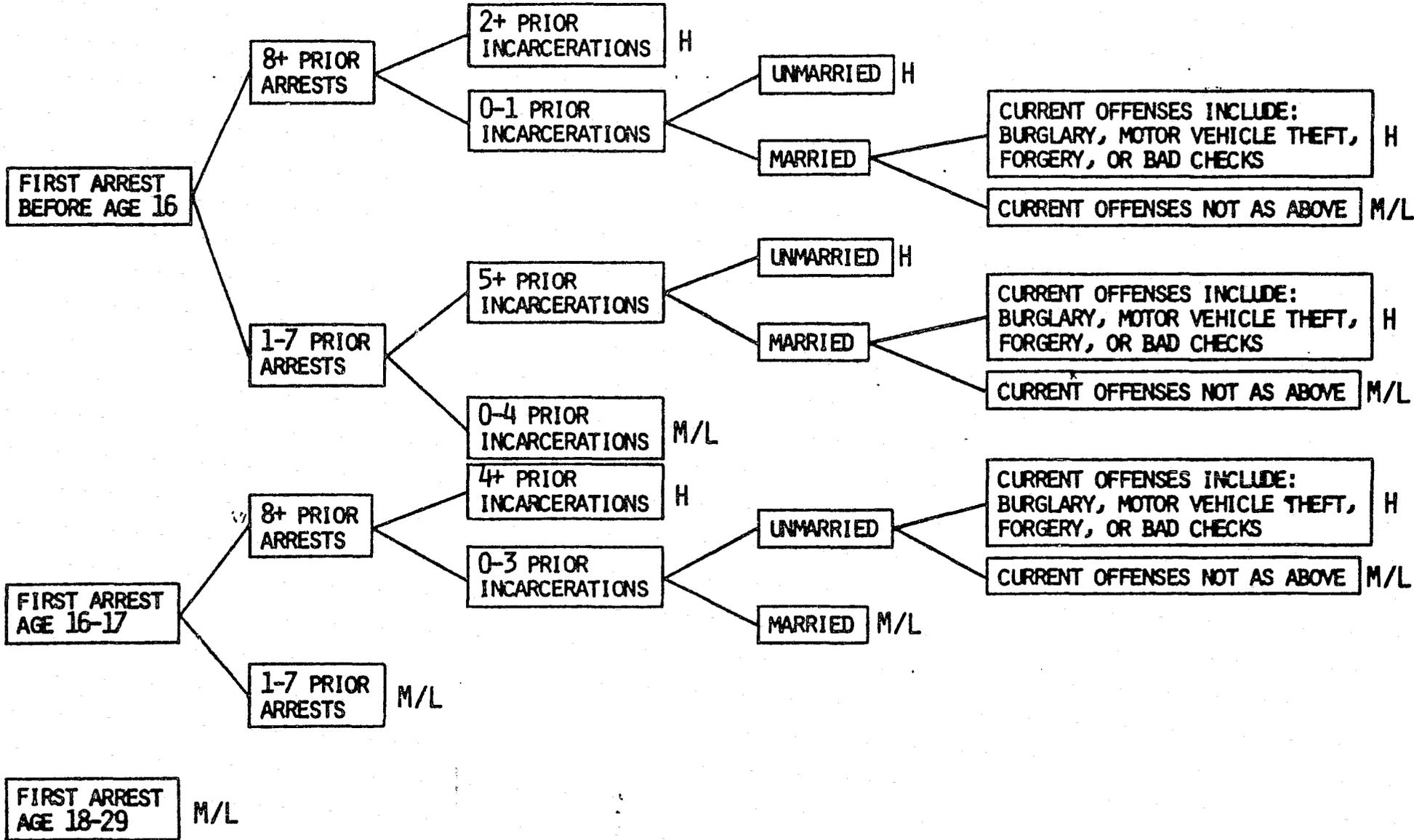
OFFENDER RISK ASSESSMENT
STATE OF IOWA
RISK OF VIOLENCE
OFFENDERS CURRENTLY AGE 18-20



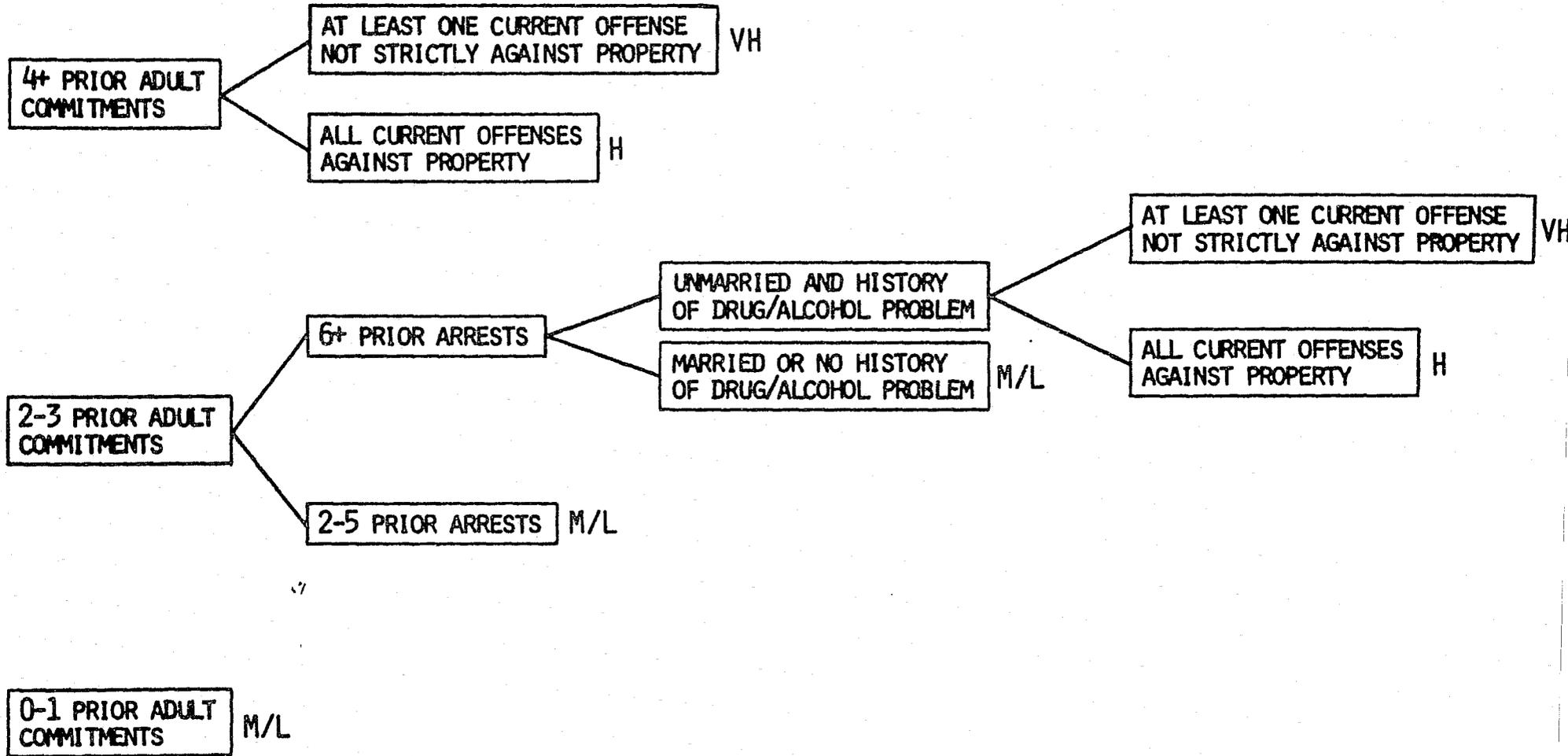
OFFENDER RISK ASSESSMENT
 STATE OF IOWA
 RISK OF VIOLENCE
 OFFENDERS CURRENTLY AGE 21-29
 AT LEAST ONE CURRENT OFFENSE NOT STRICTLY AGAINST PROPERTY



OFFENDER RISK ASSESSMENT
STATE OF IOWA
RISK OF VIOLENCE
OFFENDERS CURRENTLY AGE 21-29
ALL CURRENT OFFENSES STRICTLY AGAINST PROPERTY



OFFENDER RISK ASSESSMENT
STATE OF IOWA
RISK OF VIOLENCE
OFFENDERS CURRENTLY AGE 30+



OFFENDER RISK ASSESSMENT
STATE OF IOWA
SUPPLEMENTARY ASSESSMENT

FORM D

HIGH RISK (H)

AGE 21-24/5+ PRIOR ARRESTS/FIRST ARREST AGE 18-24

AGE 25-29/8+ PRIOR ARRESTS/FIRST ARREST AGE 18-29/2+ PRIOR ADULT COMMITMENTS

AGE 30-44/8+ PRIOR ARRESTS/FIRST ARREST AGE 20-44/2+ PRIOR ADULT COMMITMENTS

MEDIUM OR LOW RISK (M/L)

ALL OTHER OFFENDERS

OFFENDER RISK ASSESSMENT
STATE OF IOWA
GENERAL RISK OF RECIDIVISM
ADJUSTMENT FOR VIOLENCE/SUPPLEMENTAL RISK

FORM E

Instructions First locate the table below corresponding to the offender's current age group. Then locate the offender's general risk rating to the left side of the table, the appropriate violence/supplemental risk rating to the top of the table, and the adjusted general risk rating in the body of the table.

AGE 18-19

GENERAL RISK RATING	VIOLENCE RISK		
	M/L	H	VH
VH	VH	UH	SR
H	H	UH	SR
LM	LM	UH	SR
L	L	UH	SR
VL	VL	UH	SR

AGE 20-24

GENERAL RISK RATING	VIOLENCE AND SUPPL. RISK BOTH M/L	HIGH VIOLENCE OR HIGH SUPPL. RISK	VERY-HIGH VIOLENCE RISK
HM	HM	H	VH
LM	LM	H	VH
L	L	L	L
VL	VL	VL	VL

AGE 25-29

GENERAL RISK RATING	VIOLENCE AND SUPPL. RISK BOTH M/L	HIGH SUPPL. RISK	HIGH VIOLENCE RISK	VERY-HIGH VIOLENCE RISK
HM	HM	H	UH	SR
L	L-VL	H	UH	SR
VL	VL	VL	UH	SR

AGE 30+

GENERAL RISK RATING	VIOLENCE AND SUPPL. RISK BOTH M/L	HIGH VIOLENCE OR HIGH SUPPL. RISK	VERY-HIGH VIOLENCE RISK
LM	LM	VH	UH
L	L	L	L
L-VL	L-VL	L-VL	L-VL
VL	VL	VL	VL

OFFENDER RISK ASSESSMENT
STATE OF IOWA
GENERAL RISK OF RECIDIVISM
SMOOTHING FUNCTION

FORM F

COMPONENT A

- 1 Current age 25-29
- 2 Current age 20-24
- 3 Current age 0-19
- 1 No employable skill
- 1 No high school diploma
- 1 Not legally married

___ TOTAL SCORE

- RISK RATINGS: 1) 0-2
2) 3-4
3) 5-6

COMPONENT B

- 4 3+ prior arrests
- 4 First arrest age 0-17
- 4 Juvenile commitment
- 4 1-3 prior jail/prison/probation
- 8 4+ prior jail/prison/probation
- 3 History of drug/alcohol problem
- 6 History of narcotics use
- 1 Known aliases

___ TOTAL SCORE

- RISK RATINGS: 1) 0
2) 1-3
3) 4-8
4) 9-13
5) 14-20
6) 21-30

COMPONENT C (current offenses)

- 1 Sex offense agt. juvenile, OMVUI-1st, others not listed below
- 2 Manslaughter, drug offenses except narcotics OMVUI-2nd or 3rd, stolen property, carrying weapons, vandalism, attempted rape, shoplifting, embezzlement
- 3 Aggravated assault, murder, rape, narcotics, going armed with intent, larceny, fraud except bad checks, crimes against public morals, conspiracy, crimes against public justice and a
- 4 Robbery and assault to rob, burglary and attempts, motor vehicle theft, forgery, counterfeiting, bad checks, arson, extortion

RISK RATINGS (as above)

-111-

DEFINE THE "RISK PROFILE" OF THE OFFENDER AS THE JUXTAPOSITION OF RISK RATINGS FOR COMPONENTS A, B, C IN THAT ORDER

COMPOSITE RISK RATING

RISK PROFILES CLASSIFIED AT EACH RATING

VERY-HIGH RISK (VH)	163, 164, 263, 264, 353, 354, 363, 364
HIGH RISK (H)	154, 162*, 244*, 253, 254, 262*, 334 ^o , 342*, 343*, 344, 351, 352, 361*, 362
HIGH-MEDIUM RISK (HM)	124, 134, 143, 144, 152, 153, 161, 223, 224, 233, 234, 243, 252, 261, 323, 324, 332, 333
LOW-MEDIUM RISK (LM)	114, 123, 133, 141, 142, 151, 214, 232, 241, 242, 251, 313, 314, 322, 331, 341
LOW RISK (L)	113, 131, 132, 213, 222, 231, 321
VERY-LOW RISK (VL)	111, 112, 121, 122, 211, 212, 221, 311, 312

*Rate misdemeanants (excluding aggravated) with these profiles as HIGH-MEDIUM RISK.

OFFENDER RISK ASSESSMENT
 STATE OF IOWA
 GENERAL RISK OF RECIDIVISM
 FINAL ASSESSMENT

Instructions Locate the offender's adjusted general risk rating to the left side of the table below, and his or her smoothing factor to the top of the table, circling the corresponding final risk rating in the body of the table.

ADJUSTED GENERAL RISK RATING	SMOOTHING FACTOR					
	VL	L	LM	HM	H	VH
SR	VL	LM	UH	UH	UH	SR
UH	VL	LM	VH	VH	UH	SR
VH	VL	LM	VH	VH	VH	UH
H	VL	LM	H	H	VH	VH
HM	VL	LM	LM	HM	H	H
LM	VL	L	LM	LM	HM	H
L	VL	L	LM	LM	HM	HM
L-VL	VL	L	L	LM	LM	LM
VL	VL	VL	L	L	L	L

OFFENDER RISK ASSESSMENT
 STATE OF IOWA
RISK OF VIOLENCE
FINAL ASSESSMENT

FORM H

Instructions Locate the offender's final general risk rating to the left side of the table below, and his or her (preliminary/previously coded) violence risk rating to the top of the table, the latter located according to whether or not the offender has any current offense against person(s), circling the corresponding final violence risk rating in the body of the table.

FINAL GENERAL RISK RATING	CURRENT OFFENSE AGAINST PERSON(S)			CURRENT OFFENSE NOT AGAINST PERSON(S)		
	RISK OF VIOLENCE			RISK OF VIOLENCE		
	M/L	H	VH	M/L	H	VH
SR	UH	SR	SR	H	VH	UH
UH	UH	SR	SR	H	VH	UH
VH	UH	UH	UH	HM	HM	HM
H	LM	LM	LM	LM	LM	LM
HM	LM	LM	LM	VL	VL	VL
LM	LM	LM	LM	VL	VL	VL
L	L	L	L	VL	VL	VL
VL	L	L	L	N	N	N

APPENDIX B

TABLES

TABLE A

**DISTRICT OF COLUMBIA OFFENDER RISK ASSESSMENT
FINAL GENERAL RISK OF RECIDIVISM**

Prior Adult Incarcerations

<u>Prior Adult Incarcerations</u>	<u>Total Cases</u>	<u>Final General Risk Rating</u>							
		<u>SR</u>	<u>UH</u>	<u>VH</u>	<u>H</u>	<u>HM</u>	<u>LM</u>	<u>L</u>	<u>VL</u>
None	298	7	24	59	43	34	52	53	26
One	79	5	7	12	11	10	26	5	3
Two	67	7	6	12	15	5	17	5	0
Three	43	1	3	5	11	4	18	1	0
Four	23	3	2	7	2	2	5	2	0
Five	19	1	1	9	4	1	1	2	0
Six	9	1	2	3	2	0	1	0	0
Seven	5	0	1	1	1	0	1	1	0
Eight or more*	30	3	2	12	7	1	3	2	0
TOTAL	573	28	48	120	96	57	124	71	29

*Table includes two cases where prior incarcerations were unknown however, a Final G-RISK was calculated.

TABLE B

DISTRICT OF COLUMBIA OFFENDER RISK ASSESSMENT
FINAL GENERAL RISK OF RECIDIVISM

Years Of Formal Schooling

Years of Schooling	Total Cases	Final General Risk Rating							
		SR	UH	VH	H	HM	LM	L	VL
0-6	15	1	0	3	4	1	3	2	1
7	39	4	9	9	5	4	6	1	1
8	76	4	10	23	11	8	6	9	5
9	126	6	9	31	29	10	26	12	3
10	121	8	12	21	14	21	30	11	4
11	88	3	6	20	19	7	17	12	4
12	60	0	0	6	10	2	25	16	1
13	5	1	0	0	1	1	1	1	0
14	3	0	0	2	1	0	0	0	0
15	0	0	0	0	0	0	0	0	0
16	2	0	0	0	0	0	0	0	2
17 or more*	38	1	2	5	2	3	10	7	8
TOTAL	573	28	48	120	96	57	124	71	29

*Includes two cases where years of schooling was unknown; however, a Final G-RISK was calculated.

TABLE C

**DISTRICT OF COLUMBIA OFFENDER RISK ASSESSMENT
FINAL GENERAL RISK OF RECIDIVISM**

Total Prior Convictions

<u>Prior Convictions</u>	<u>Total Cases</u>	<u>Final General Risk Rating</u>							
		<u>SR</u>	<u>UH</u>	<u>VH</u>	<u>H</u>	<u>HM</u>	<u>LM</u>	<u>L</u>	<u>VL</u>
None	130	1	4	14	13	6	29	37	26
One	92	0	8	11	19	17	22	13	2
Two	81	3	9	14	16	10	22	6	1
Three	69	5	6	11	16	8	17	6	0
Four	51	4	5	14	11	6	10	1	0
Five	33	0	2	13	6	3	7	2	0
Six	21	3	3	9	3	1	2	0	0
Seven	19	3	2	9	1	0	2	2	0
Eight or more*	77	9	9	25	11	6	13	4	0
TOTAL	573	28	48	120	96	57	124	71	29

*This table includes two cases where prior incarcerations were unknown however, a Final G-RISK was calculated.

TABLE D

**DISTRICT OF COLUMBIA OFFENDER RISK ASSESSMENT
FINAL GENERAL RISK OF RECIDIVISM**

Prior Arrests

<u>Prior Arrests</u>	<u>Total Cases</u>	<u>Final General Risk Rating</u>							
		<u>SR</u>	<u>UH</u>	<u>VH</u>	<u>H</u>	<u>HM</u>	<u>LM</u>	<u>L</u>	<u>VL</u>
None	65	0	1	2	4	2	10	25	21
One	26	0	0	0	4	3	6	8	5
Two	38	0	0	4	3	7	15	7	2
Three	45	0	2	5	6	7	13	11	1
Four	41	0	0	7	9	11	11	3	0
Five	32	1	0	9	8	1	11	2	0
Six	47	1	3	8	19	7	7	2	0
Seven	41	0	2	15	15	3	6	0	0
Eight or more	238	26	40	70	28	16	45	13	0
TOTAL	573	28	48	120	96	57	124	71	29

TABLE E

**DISTRICT OF COLUMBIA OFFENDER RISK ASSESSMENT
FINAL GENERAL RISK OF RECIDIVISM**

Age At Parole

<u>Age at Parole</u>	<u>Total* Cases</u>	<u>Final General Risk Rating</u>							
		<u>SR</u>	<u>UH</u>	<u>UH</u>	<u>H</u>	<u>HM</u>	<u>LM</u>	<u>L</u>	<u>VL</u>
18	0	0	0	0	0	0	0	0	0
19	5	1	2	0	0	0	2	0	0
20-24	121	7	8	49	28	7	15	6	1
25-29	190	13	31	23	38	32	27	20	6
30-39	189	6	7	35	19	15	65	26	16
40 or over	55	0	0	13	9	3	13	12	5
TOTAL	560	27	48	120	94	57	122	64	28

*This table excludes 13 persons because of missing data in the parole age variable.

TABLE F

**DISTRICT OF COLUMBIA OFFENDER RISK ASSESSMENT
FINAL GENERAL RISK OF RECIDIVISM**

Substance Abuse History

Substance Abuse History*	Total Cases	Final General Risk Rating							
		SR	UH	VH	H	HM	LM	L	VL
No History	162	5	12	20	22	13	41	35	14
History of Drug/ Alcohol Problem	51	0	3	12	12	8	11	4	1
History Alcohol only	59	1	4	8	9	5	19	9	4
History of Narcotic Drug only	286	21	25	79	52	31	50	20	8
TOTAL	558	27	44	119	95	57	121	68	27

*This table excludes 15 persons who may or may not have had some history of non narcotic drug use.

TABLE G

DISTRICT OF COLUMBIA OFFENDER RISK ASSESSMENT
FINAL GENERAL RISK OF RECIDIVISM

Juvenile Convictions

Juvenile Convictions	Total Cases	Final General Risk Rating							
		SR	UH	VH	H	HM	LM	L	VL
None	364	3	16	56	60	32	103	65	29
One	88	7	15	20	20	14	10	2	0
Two	47	3	7	19	7	4	6	1	0
Three	28	8	4	7	4	2	1	2	0
Four	14	2	1	8	3	0	0	0	0
Five	9	1	1	3	2	1	1	0	0
Six or more*	23	4	4	7	3	1	3	1	0
TOTAL	573	28	48	120	99	54	124	71	29

*This table includes three cases where juvenile convictions were unknown however a Final G-Risk was calculated.

TABLE H

DISTRICT OF COLUMBIA OFFENDER RISK ASSESSMENT
FINAL GENERAL RISK OF RECIDIVISM

Juvenile Commitments

Juvenile Committments	Total Cases	Final General Risk Rating							
		SR	UH	VH	H	HM	LM	L	VL
None	439	7	26	72	79	43	114	69	29
One	77	9	15	29	10	8	6	0	0
Two	27	6	3	9	3	2	3	1	0
Three	16	4	2	5	1	4	0	0	0
Four	5	2	2	1	0	0	0	0	0
Five	2	0	0	2	0	0	0	0	0
Six or more*	7	0	0	2	3	0	1	1	0
TOTAL	573	28	48	120	96	57	124	71	29

*This table includes two cases where juvenile committments were unknown however a Final G-Risk was calculated.

TABLE I

DISTRICT OF COLUMBIA OFFENDER RISK ASSESSMENT
FINAL GENERAL RISK OF RECIDIVISM

Age at First Arrest

Age at First Arrest	Total Cases	Final General Risk Rating							
		SR	UH	VH	H	HM	LM	L	VL
0 - 12	62	11	17	22	4	4	2	2	0
3 - 15	100	10	23	25	17	8	13	4	0
16 - 17	85	4	3	21	20	16	15	6	0
18 - 21	195	0	4	39	42	23	52	28	7
22 - 29	92	2	1	13	8	6	35	15	12
30 or over*	26	0	0	0	3	0	5	9	9
TOTAL	560	27	48	120	94	57	122	64	28

*This table excludes all missing data therefore the N size is reduced.

TABLE J

DISTRICT OF COLUMBIA OFFENDER RISK ASSESSMENT
FINAL GENERAL RISK OF RECIDIVISM

Prior Adult Convictions

<u>Prior Adult Convictions</u>	<u>Total Cases</u>	<u>Final General Risk Rating</u>							
		<u>SR</u>	<u>UH</u>	<u>VH</u>	<u>H</u>	<u>HM</u>	<u>LM</u>	<u>L</u>	<u>VL</u>
None	203	6	17	38	26	18	33	39	26
One	93	2	7	15	16	14	24	13	2
Two	82	5	7	16	16	8	22	7	1
Three	54	4	4	6	11	7	18	4	0
Four	37	5	4	8	8	5	7	0	0
Five	25	1	1	8	6	0	7	2	0
Six	10	1	2	4	1	1	1	0	0
Seven	16	0	1	9	2	0	2	2	0
Eight or more*	53	4	5	16	10	4	10	4	0
TOTAL	573	28	48	120	96	57	124	71	29

*Includes two cases where prior adult convictions were unknown; however, a Final G-RISK was calculated.

TABLE K

DISTRICT OF COLUMBIA OFFENDER RISK ASSESSMENT
FINAL GENERAL RISK OF RECIDIVISM

Prior Adult Prison Commitments

<u>Prior Adult Prison Commitments</u>	<u>Total Cases</u>	<u>Final General Risk Rating</u>							
		<u>SR</u>	<u>UH</u>	<u>VH</u>	<u>H</u>	<u>HM</u>	<u>LM</u>	<u>L</u>	<u>VL</u>
None	405	12	33	82	67	42	81	60	28
One	93	5	6	12	17	15	33	4	1
Two	38	6	3	9	8	0	8	4	0
Three	16	2	2	6	2	0	2	2	0
Four or more*	21	3	4	11	2	0	0	1	0
TOTAL	573	28	48	120	96	57	124	71	29

*Includes two cases where number of prior commitments were unknown; however, a Final G-RISK was calculated.

TABLE L

DISTRICT OF COLUMBIA OFFENDER RISK ASSESSMENT
FINAL GENERAL RISK OF RECIDIVISM

Prior Adult Jail Terms

Prior Adult Jail Terms	Total Cases	Final General Risk Rating							
		SR	UH	VH	H	HM	LM	L	VL
None	359	16	28	71	50	40	71	56	27
One	81	5	8	13	18	7	21	7	2
Two	52	4	6	10	8	5	16	3	0
Three	31	0	1	12	6	3	7	2	0
Four	16	0	3	2	4	1	5	1	0
Five	6	1	1	2	2	0	0	0	0
Six	4	1	0	1	2	0	0	0	0
Seven	5	0	0	2	1	0	2	0	0
Eight or more*	19	1	1	7	5	1	2	2	0
TOTAL	573	28	48	120	96	57	124	71	29

*Includes two cases where there was no data for adult jail terms; however, a Final G-RISK was calculated.

REFERENCES

Kathleen Connolly. A Review of Literature as Suitability for Parole. Prepared for the Board of Prison terms of the State of California, September, 1981.

Daryl R. Fischer. The Iowa Offender Risk Assessment Scoring System. Volume 1: System Overview and Coding Procedures: Statistical Analysis Center, Office for Planning and Programming, State of Iowa, October, 1980.

Daryl R. Fischer. Risk Assessment In Iowa. Statistical Analysis Center, Iowa Office for Planning and Programming, November, 1980.

Daryl R. Fischer. Offender Risk Assessment. Implications for Sentencing and Parole Policy. Statistical Analysis Center, Iowa Office for Planning and Programming, April, 1981.