

# IDENTIFYING CHRONIC JUVENILE OFFENDERS

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### **ABSTRACT**

With the recent rise in juvenile offending, particularly violent juvenile crime, legislative and public attention has focused sharply on the question of juvenile corrections. In the past few years juvenile justice has witnessed stronger legislative dictates requiring public agencies to explicitly consider the public safety implications of their policy decisions, increasing emphasis on outcomes-based evaluation, and a renewed interest in matching services to juvenile needs. As a result of these trends risk classification and, specifically, the identification of chronic juvenile offenders have assumed a much higher policy profile. In this paper we review the historical development of risk classification set within the wider context of a rational decision-making model. We discuss the major risk factors identified in the literature and describe in detail a study to identify and respond to chronic juvenile offenders in Orange County, California. Using a unique juvenile justice database in Philadelphia we develop a classification model of chronic offending. Despite comparable proportions of chronic offenders we find that many of the Orange County measures do not apply. Using the Philadelphia risk classification we show the policy potential of such a model by evaluating the impact of program type and neighborhood on chronic offending.

## **IDENTIFYING CHRONIC JUVENILE OFFENDERS**

In the past quarter century research on chronic juvenile offending has moved increasingly toward center stage in juvenile justice policymaking. This trend reflects, in part, a direct response to stronger legislative dictates requiring public agencies to explicitly consider the public safety implications of their policy decisions. It also reflects an increased awareness within the public policy arena of the importance of risk classification for more informed and rational juvenile justice decision-making. This paper describes one of the ways in which the Department of Human Services (DHS) in Philadelphia has utilized a rational decision-making model to optimize its policy development in the field of juvenile justice. It shows how research information derived from a unique program evaluation database has allowed DHS to develop a classification model that identifies juveniles at high risk of becoming chronic offenders. Using data from this model it is possible to more appropriately examine issues such as the impact of different program interventions and the effect of neighborhood on case outcomes.

### **The Policy-Making Context: The Rational Decision-Making Model**

Rational decision-making has been defined as decisions that, in the light of the information available, maximize the probability of the achievement of the purposes of the decision-maker in that specific and particular case (Wilkins, 1969). Of course, this definition assumes that more than one decision choice is possible, that there is some goal or set of goals to be achieved and that information relevant to the decision is available.

For the purposes of this paper the context for the rational model is the assessment of the optimal placement for adjudicated juveniles – particularly those that are likely to have extensive juvenile and criminal ‘careers’. From a decision-making perspective the range of program choices is enormous – more than one hundred juvenile programs are utilized currently by Philadelphia. Indeed, as Gottfredson and McConville (1987) have argued, at a time of increasing fiscal, legal, and moral pressures to reduce commitments to already crowded correctional institutions juvenile justice policy makers and practitioners are being exhorted to consider a rapidly expanding array of sanctioning alternatives. Given these pressures it is understandable that policy makers and practitioners sometimes express skepticism and confusion about the new items among the ever-expanding range of graduated dispositional options. Their ability to make

informed selection decisions is frequently impeded by a lack of good information either on the juveniles themselves or on the programs being considered.

The major policy goals with regard to chronic offenders are fairly straightforward. They include increased efficiency of resource allocation (by focusing more resources on those juveniles likely to generate most demand on those resources in the future), improved matching of juvenile and program (a philosophy long advocated but rarely practicable – see Palmer, 1992) and improved public safety.

It is the third element of the rational decision-making model -- the availability of appropriate information – that has long proved to be the most intractable problem. Identifying chronic juvenile offenders after they have committed a number of offenses is simple enough. The critical need is to be able to identify the chronic offender *before* they have received multiple court dispositions. The task involves a longitudinal perspective in which we study a pre-delinquent or first-time offender population to identify those juveniles that go on to become chronic offenders. Having isolated the group of interest we then must identify those characteristics that seem most important in discriminating between the chronic offender and the remainder of the population. This paper describes the efforts of DHS, Philadelphia to develop such a classification model.

### **Predicting Chronic Delinquent Behavior**

Although it might seem that interest in risk prediction is a recent development the fact is that public and scholarly interest in the subject has a surprisingly long history (see Jones, 1995). In the 1920's Burgess (1928) completed his famous prediction study on parole decision-making and subsequent work by Ohlin (1951), Gottfredson et al. (1978) further refined this into "salient factor scores" and "parole guidelines" -- giving prediction methods a major role in policymaking. The work of the Gluecks (1950) is one of the best-known prediction studies in the history of delinquency. Farrington and Tarling (1985) describe how President Nixon was advised that the Gluecks' Social Prediction Table enabled "9 out of 10 delinquents [to be] correctly identified at the age of 6." Such claims inevitably attracted microscopic evaluation of the Glueck's work and some severe criticism, including:

- the delinquents and non-delinquents in the study were extreme groups and generalizations from the research were invalid

- the high delinquent base rate (50%) in the study population made it far easier to predict delinquency than is true in the general population
- there was no validation sample

The widespread criticism of the Glueck's groundbreaking research tended to discredit delinquency prediction research and, as a result, psychologists undertook most prediction research during the following two to three decades. Examples of such work include the Minnesota Multiphasic Personality Inventory, Eysenck's Personality Questionnaire, the Jesness Inventory and the Bristol Social Adjustment Guide -- used in Britain).

The severe and continued criticism of empirically based delinquency prediction studies made statistical work in this field almost a taboo area. Even Wilkins (1985), a leading proponent of criminal prediction studies, has argued that prediction in the field of juvenile delinquency is sometimes inappropriate:

*"I have conducted research into the prediction of recidivism and see no moral objection to this, but I have not, and would not, carry out research aimed at predicting probable delinquency. No individual citizen (and this includes juveniles) while that individual retains his full quota of individual rights, should be placed in a position of risk of becoming a "false positive" and no personal information should be used in the manner we have discussed."*

Nevertheless, during the past twenty years empirically based delinquency prediction research has experienced resurgence. Wolfgang et al.'s study of Philadelphia juveniles (Wolfgang et al., 1972) and Greenwood's (1980, 1982) subsequent work on selective incapacitation proved enormously appealing to legislators, judges and correctional administrators and provided the launch-pad for the wholesale introduction of risk assessment into juvenile justice. Wolfgang et al. found that six percent of the juveniles in their study cohort were arrested at least five times and that these multiple offenders were responsible for 52 percent of all juvenile offenses for the cohorts under study.

Wolfgang et al.'s seminal work brought the concept of the career criminal or chronic offender into the everyday lexicon of juvenile justice administrators. However, further research on the topic has been somewhat mired by scholarly debate about age and crime. Essentially, the argument centers on two competing paradigms of delinquency theory. One approach argues for the use of developmental theories involving differential explanations for various phases of a delinquent/criminal career (Blumstein et al., 1986; Blumstein et al., 1988; Hawkins et al., 1986; Huizinga et al., 1991; Loeber and LeBlanc, 1990; Loeber et al., 1991; Nagin and Smith, 1990;

Paternoster and Triplett, 1988; Smith et al., 1991). Scholars advocating this position feel that correlates and predictors of delinquency may differ, based on the phase of the delinquent career under study. For instance, factors that predict the *prevalence* of delinquency may be different from those predicting the *incidence* of the delinquency. Within this framework, researchers have developed typologies of offenders such as resisters, desisters, and persisters (Smith et al., 1991; Blumstein and Moitra, 1980).

The alternative approach is best described by Gottfredson and Hirschi (1986, 1988, 1990) who argue that delinquency, regardless of its place in the criminal career, can be explained by one underlying factor – a lack of self-control. The tendency toward delinquent and criminal behavior, they believe, is highly stable – so the correlates and predictors of the onset of delinquency would be no different than those for desistance from offending. Therefore, developing separate models to predict initiation and continuation of delinquent behavior is unnecessary. Proponents of the latter view tend to focus their work on the identification of those factors that best explain/predict crime and/or delinquency.

The scholarly debate surrounding chronic offending does not focus solely on theory. The field is equally divided on the use made of our predictive capabilities. As noted above, Greenwood (1980) argues that juveniles identified as potential chronic offenders early in their delinquent careers should be considered for more restrictive responses as part of his selective incapacitation strategy. The logic is simple – targeting those responsible for the largest expenditure of resources and reducing their opportunity to re-offend can significantly reduce justice costs.

Those scholars who disagree with the idea of selective incapacitation do so for several reasons. Some feel that chronic offenders simply cannot be distinguished from other offenders by using prior record until they are nearly adults (Blumstein and Moitra, 1980; Greenberg, 1991). They argue that by the time one can effectively predict chronic offending the juveniles are either very likely to begin “aging out” of delinquency or are no longer wards of the juvenile justice system. Others, like Gottfredson and Hirschi (1990) denounce selective incapacitation policies on philosophical grounds, calling instead for a funneling of resources into delinquency prevention programs.

Irrespective of one’s philosophical position on these issues there is one fact that seems virtually incontrovertible – risk prediction is a worthy goal.

*"in virtually every decision-making situation for which the issue has been studied, it has been found that statistically developed predictive devices outperform human judgments."*

(Gottfredson and Gottfredson, 1986)

Not only does empirical risk prediction outperform clinical decisions (Meehl, 1954) it offers an openness to the basis for decision-making such that one doesn't have to accept decisions on faith.

Having set the context for our examination of chronic offending it is important to re-iterate one key feature of the discussion so far. In order to achieve the advantages of the rational decision-making model, of risk classification and prediction one must ensure that the entire process is valid. As Wilkins (1985) reminds us:

*"[t]he ultimate test of predictive methods is.. neither the scientific nor the statistical nature of the exercises, but their honesty, rigor and moral underpinnings."*

### **Predictors of Recidivism or Frequency of Offending**

Most risk prediction studies focus upon predictors of recidivism or frequency of offending rather than chronic offending per se. However, there is some overlap and, based upon this subset of the literature, we are able to identify a range of variables established as having both theoretical and empirical relationships to chronic offending.

Some of the more significant variables identified include:

- *gender* (Nagin and Smith, 1990; Smith et al., 1991)
- *age* (Baird, 1984; Dean et al., 1996; Kurz and Moore, 1994; Nagin and Smith, 1990; Smith et al., 1991; Visher et al., 1991)
- *exposure to delinquent peers* (Baird, 1984; Nagin and Smith, 1990; Smith et al., 1991),
- *degree of family involvement* (Kurz and Moore, 1994; Nagin and Smith, 1990; Visher et al., 1991)
- *school problems* (Baird, 1984; Frazer and Norman, 1984; Kurz and Moore, 1994; Visher et al., 1991)
- *substance abuse* (Baird, 1984; Kurz and Moore, 1994; Frazer and Norman, 1988; Nagin and Smith, 1990; Smith et al., 1991)
- *past offending* (Baird, 1984; Frazer and Norman, 1988; Kurz and Moore, 1994; Nagin and Smith, 1990; Visher et al., 1991),
- *race* (Nagin and Smith, 1990), gang involvement (Kurz and Moore, 1994; Visher et al., 1991), size of household (Nagin and Smith, 1990),

- *child abuse*<sup>1</sup> (Dean et al., 1996)
- *social isolation* (Nagin and Smith, 1990).

Overall, it is generally agreed that factors predicting the onset and frequency (or prevalence and incidence) of delinquency are more similar than they are distinct (Dean et al., 1996; Nagin and Farrington, 1992; Patterson and Triplett, 1988; Smith et al., 1991; Smith and Brame, 1994). Nevertheless, there are some studies that find important differences between the predictors of persistent offending for youths who begin their delinquent careers at an early age, versus those whose delinquency begins when they are older (Dean et al., 1996; Nagin and Farrington, 1992; Patterson and Yoerger, 1993; Patterson et al., 1992; Simons, 1994). Most of the literature suggests that the latter group's delinquent behavior will be age-limited, whereas those who begin early are more likely to continue their criminal career into adulthood (Moffit, 1993). These studies tend to divide their sample into groups of offenders who were first adjudicated at age 13 or earlier and those whose first adjudication came after this point, though Dean et al. (1996) failed to find distinctions until they set the threshold for late first adjudication to age twelve. While factors related to poor socialization have been attributed to the delinquent acts of "life course persistent" offenders, predictors of "adolescent limited" delinquency appear to be related to peer influence and poor parental control / supervision (Dean et al., 1996; Patterson and Yoerger, 1993; Patterson et al., 1992; Simons, 1994).

### **Current Research on Chronic Offenders**

Though the debate between proponents of the developmental perspective and those who argue for a more "general theory" of delinquency continues, some scholars are beginning to build upon the risk prediction literature to focus specifically on chronic or persistent juvenile offenders. In addition, a context of shrinking budgets and a concomitant call for getting the best "bang for the buck" have prompted government agencies (at the local and federal levels) to respond to the problem by identifying youths at risk for persistent offending early in their careers. One example is the OJJDP initiative, "*Serious, Violent, and Chronic Juvenile Offenders*" which incorporates prevention measures for at-risk youth and a system of graduated sanctions for delinquent youth<sup>2</sup> (OJJDP, 1993).

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<sup>1</sup> This finding held true only for offenders whose first adjudication occurred before age twelve.

<sup>2</sup> Interestingly, little evidence exists to suggest that violent offenders tend to persist and develop violent careers.

It is evident when reviewing the literature that there are as many definitions of “chronic offenders” as there are studies that address them. Wolfgang et al.’s cohort study of boys in Philadelphia (1972; see also Tracy et al., 1990) defines this group as those who were arrested at least five times. Fraser and Norman (1988) define their population as those with four or more juvenile court adjudications. For those with shorter study periods, three offenses seem to be a common definition among researchers. Smith et al., (1991) define a youth as a “persistent offender” if he/she reports engaging in delinquency in three consecutive years. Visher et al., (1991) identify “chronic serious offenders” when they re-offend within a 36 month period after their release from the California Youth Authority. Finally, Schauss et al. (1979) uses three or more offenses, involving a felony, to define a group of chronic offenders.

Probably the most in-depth and policy relevant study of chronic offenders has been conducted in Orange County, California’s Probation Department (Kurz and Moore, 1994). Defining a population of juveniles referred to the department four or more times during a three-year study period as “chronic offenders,” they identified what came to be known as the “8% problem.” These eight percent of youthful offenders were responsible for 55% of subsequent probation referrals. In addition, they found that these juveniles could be successfully identified during their first contact with the system based on their age, school behavior/ performance, family problems, substance abuse and delinquency (stealing, runaway, or gang patterns). A child who is age 15 or younger and who has three or more of these “problem factors” will be targeted as a likely candidate for chronic offending.

Instead of focusing selective incapacitation efforts on this group of potential chronic offenders, Orange County’s Probation Department developed a program designed to concentrate intervention efforts on them and their families. The program includes a home visit and interview of the youth and his parent(s) to complete a comprehensive assessment of family functioning. In addition, the Probation Department compiles information from all agencies involved with the juvenile and his/her family, contacts any victims to determine their amenability to victim/offender mediation (which will likely involve a restitution plan), and encourages parental involvement in the case planning and intervention strategy process. Field test results indicate that juveniles receiving the intervention are significantly less likely to commit new law violations (43% versus 72%) or to have subsequent petitions filed (49% versus 93%).

The Orange County research is unique in that it focuses on a wide range of factors that can be used to predict chronic offending at the point of entry into the system and then builds on those problem factors to develop appropriate intervention. The goal of the Philadelphia study is to try and replicate the Orange County research to see whether or not similar patterns and predictors of chronic offending are found. However, the Philadelphia study attempts to extend the Orange County research by developing a statistical risk classification model based on information known about early offenders that will improve our ability to identify potential chronic offenders at the early stage. To do this we have analyzed data taken from the *ProDES* information system, an outcome-based information system that tracks every Philadelphia delinquent in the juvenile justice system.

### **Data**

The *ProDES* system was developed as a joint venture between the city's Department of Human Services (DHS) and the Crime and Justice Research Institute of Philadelphia. Operational since 1994 the system comprises data collection at four points in time: immediately following disposition in Juvenile Court, shortly after program admission, just prior to program discharge and six-months after discharge.

The information system represents a dramatic departure from the more traditional approach of discrete, cross-sectional evaluations of individual programs. From the outset *ProDES* combined inductive and deductive approaches to evaluation research. The content of the information system was developed jointly by the researchers and the programs (with both bringing to bear their particular theoretical and practical orientations). A series of evaluability assessments (see Smith, 1989; Wholey, 1994) made it possible to identify a range of measures on which there was both theoretical and practical consensus concerning their value to juvenile justice decision-making. The result was a system that comprised measures of personality, risk and need as well as more common prior record and current offense measures. Among the data collected by the system are measures of self-esteem<sup>3</sup>, values<sup>4</sup>, school and education dimensions (including attitudinal as well as performance and attendance data)<sup>5</sup>, family relations (again,

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<sup>3</sup> See Rosenberg (1965).

<sup>4</sup> From the Jesness Inventory – see Jesness, 1983).

<sup>5</sup> See Cernkovich and Giordano (1992).

including attitudinal measures as well as family composition)<sup>6</sup> and substance abuse (juvenile and parents). Currently, the database comprises more than 15,000 cases with more than 800 variables per case.

## **Method**

The analysis proceeded in two stages. The first was to examine the *ProDES* data for the period 1994 to 1998 in order to gauge the proportion of juveniles that could be defined as chronic offenders. One goal of this analysis would be to allow some comparison with Orange County's '8 percent problem'.<sup>7</sup>

The second stage was more involved. The *ProDES* system allowed us to identify a cohort of juveniles who had none or only one prior arrest at the time they entered the system.<sup>8</sup> This group represents those juveniles who are early in their delinquent careers, though we know that some will go on to become chronic delinquents. The data we have at this stage more appropriately reflects the policy need – what do we know about juvenile delinquents entering the system for the first or second time that will allow us to differentiate those that are at high risk of becoming chronic offenders.

We defined chronic offender as any juvenile entering the system with at least three prior arrests. Therefore, in this study, we have identified a cohort of 'early delinquents' and examined their records to find those that returned with the required three or more prior arrests. The resulting database therefore contains information on juveniles when they were early delinquents but also indicates which ones would go on to become chronic offenders. Using these data we performed multivariate analyses to identify what variables, if any, were effective at discriminating the future chronic offenders from the rest.

The technique used to conduct the analysis is a version of configural analysis called automatic interaction detection (see Brennan, 1987; Jones, 1995).<sup>9</sup> The goal of the technique is to classify a population into increasingly homogeneous subgroups on the basis of the criterion

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<sup>6</sup> See Giordano and Cernkovich (1987).

<sup>7</sup> Another more substantive goal was to enable analysis of the factors that discriminate between chronic offenders and non-chronic offenders at any given time. This is the more traditional form of chronic offenders analysis but is undermined by the fact that the chronic offenders have already committed the delinquent acts and all measures reflect their status as chronic offenders not early delinquents.

<sup>8</sup> The intake period for the cohort was defined as all case dispositions during fiscal year 1996 -- July 1, 1995 to June 30 1996.

measure – in this case chronic offending. Several excellent reviews have been published on statistical issues in risk prediction (Simon, 1971; Tarling and Perry, 1985; Gottfredson 1987) including the use of CHAID as compared to the more traditional method of logistic regression. Interestingly, they all reach an important, if surprising, general conclusion -- "*no method is consistently better than any other in validation samples*" (Tarling and Perry, 1985, p.264). Indeed, the studies generally reach two important conclusions. The first is that data limitations in risk prediction research significantly constrain the potential of sophisticated and more appropriate statistical approaches to analysis. The second is that the lack of differentiation among methods is more apparent during the validation than the construction of the instrument, suggesting that development of risk instruments without validation is, itself, an extremely risky enterprise.<sup>10</sup>

## **Results**

The results from the first stage of analysis showed that during 1994 to 1998 the proportion of chronic offenders – defined as those having four or more arrests<sup>11</sup> – was 17 percent (Figure 1). If the definition is broadened to include juveniles with three or more arrests then the figure is 31 percent; if the definition is narrowed to juveniles with five or more arrests then the figure is under 9 percent. By monitoring the proportion of chronic offenders within the system at any given time we find that the proportion is not stable – there is evidence of a significant increase during early 1996 (Figure 2).

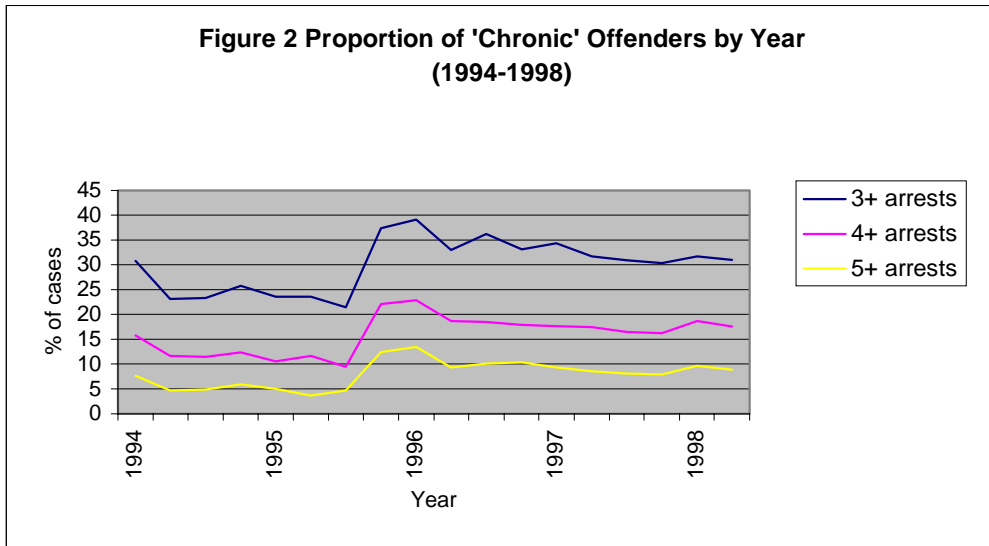
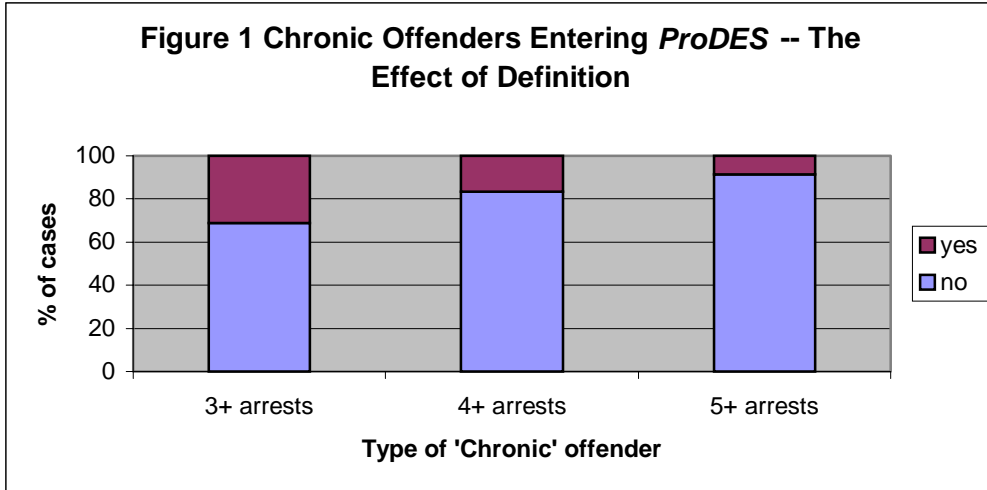
With these data supplying the broader context we next moved to stage two of the analysis. An intake cohort of early delinquent juveniles (those with none or one prior arrest) was selected, yielding a sample of 1,363. From this group we identified those that subsequently re-entered the system with three or more prior arrests (i.e. comparable with the definition used in Orange County). This definition produced a total of 7.9 percent of ‘chronic offenders’ – almost the same as the number reported in Orange County.

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<sup>9</sup> The technique is available as SPSS CHAID or, more recently, SPSS Answer Tree.

<sup>10</sup> For a more detailed comparison of the methods see Jones, 1995.

<sup>11</sup> The Orange County criterion was four or more referrals within a three-year period.



In addition to the potential predictor variables identified earlier we can derive a specific set of predictors from the Orange County study. To test the comparability of the two populations we examined the association between chronic offending among the Philadelphia cohort and those variables that were direct or acceptable proxy measures for the dimensions identified in Orange County. As Table 1 shows, very few of the Orange County predictors transfer to the Philadelphia cohort. Given the rarity of the outcome being predicted it is not surprising to find so few variables displaying any significant association. However, the results do caution us against identifying factors that make intuitive sense and then compiling these into some form of 'clinically' based classification system.

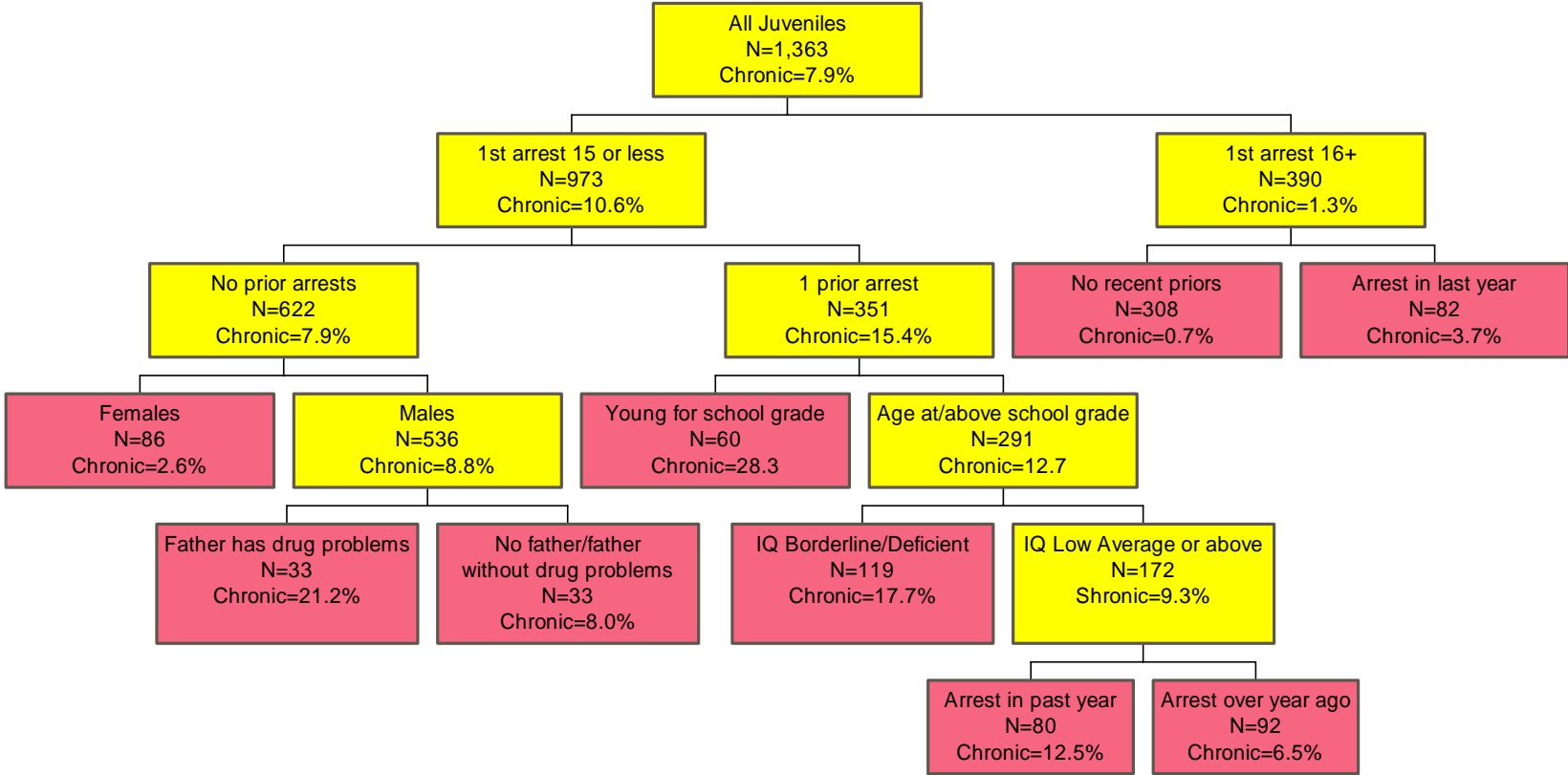
**Table 1 Significance of Orange County Risk Factors as Predictors in Philadelphia**

<b>Measure:</b>	<b>Chi<sup>2</sup> Probability:</b>
<b>School Behavior/Performance:</b>	
Poor Attendance Record	0.088
Educational Adjustment to Program	n.s.
Refusal to participate in educational programs	n.s.
Attachment to teacher	n.s.
School attachment	n.s.
School commitment	n.s.
School involvement	n.s.
Community Involvement	n.s.
Perceived opportunities	n.s.
<b>Family Problems:</b>	
Negative peer influences	n.s.
Self-reported family problems at home	n.s.
Family income	n.s.
Marital status of parents	n.s.
Self-reported quality of family relations	n.s.
Caring and trust	n.s.
Identity support	n.s.
Control and supervision	n.s.
Intimacy and communication	n.s.
Instrumental communication	n.s.
Control and supervision	n.s.
Siblings arrested	n.s.
Mother/Father arrested	n.s.
History of family violence	n.s.
Prior dependency referral to DHS	0.034
<b>Substance Abuse Factors:</b>	
Any history of drug abuse	0.096
Any history of alcohol abuse	n.s.
Self-reported alcohol/drug abuse problem	n.s.
Staff assessed alcohol/drug abuse problem	n.s.
<b>Delinquency Factor:</b>	
Gang member	n.s.

The examination of the Orange County ‘problem factors’ emphasizes just how difficult it will be to develop any good predictive model when the base-rate of chronic offending is so low.<sup>12</sup> Nevertheless, the CHAID model was able to identify several variables that were significantly associated with subsequent chronic offending (Figure 3). The most important

<sup>12</sup> The optimal distribution for prediction purposes is a 50/50 split. The further one departs from this the more difficult it is to develop any classificatory scheme that has utility. For more discussion of base-rate issues see Jones, 1995.

Figure 3 Predicting Chronic Offenders From An Early Delinquent Cohort



predictor was age at first arrest, with the model differentiating between those juveniles aged 15 significantly associated with subsequent chronic offending (Figure 3). The most important predictor was age at first arrest, with the model differentiating between those juveniles aged 15 or less and those aged 16 or more. Among the younger group the model identified prior arrests (none or one), gender, paternal drug problems, school grade/age appropriateness, IQ and recent arrests as additional predictors. Among the juveniles aged 16 or more at first arrest the only additional predictor was recent prior arrest (i.e. was any arrest in the prior year?).

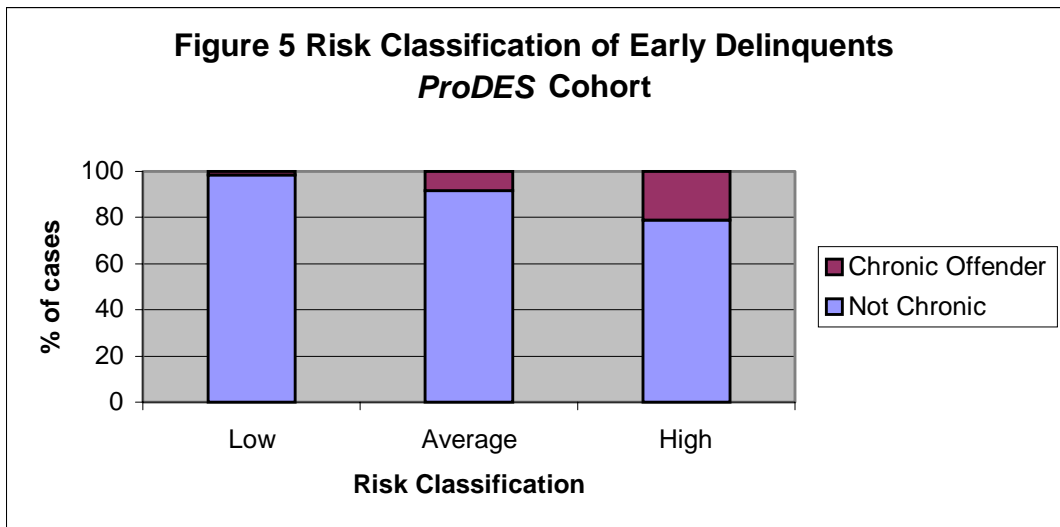
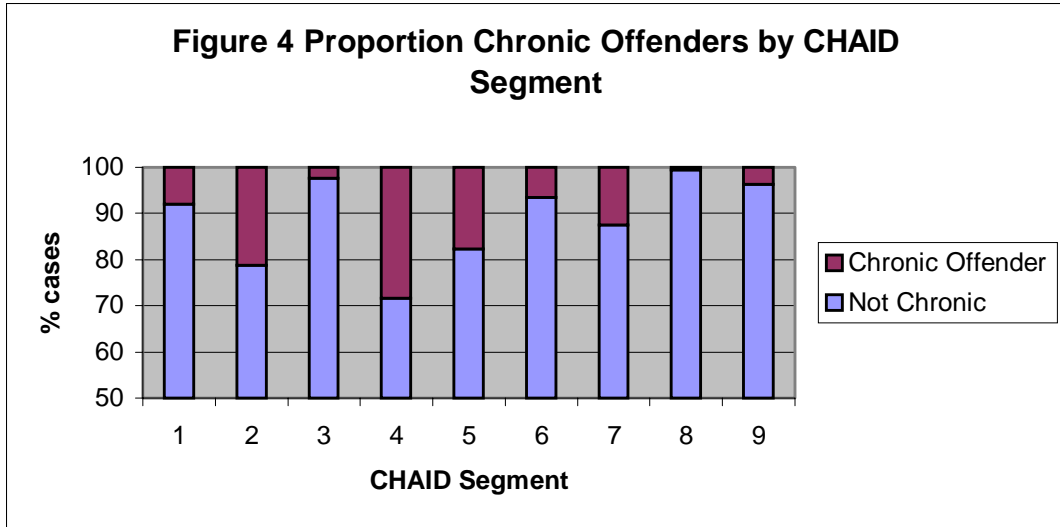
Using these variables CHAID produces the decision tree found in Figure 3. Using the decision rules presented in the tree we are able to develop an empirically based classification system that identifies nine different types of early delinquent, each with a differing probability of becoming a chronic offender. Figure 4 shows the proportion of juveniles in each terminal CHAID segment<sup>13</sup> that became chronic offenders within the follow-up period. In some groups the proportion of chronic offenders is extremely low – among the 308 (over 22 percent of the sample) juveniles aged 16 or more at first arrest with no prior arrest in the past year only 0.7 percent became chronic offenders.<sup>14</sup> In contrast we can identify a small group of 60 (under 5 percent of the sample) juveniles -- 15 or less at first arrest, with one prior at the time of the current arrest and in a school grade that is high for their age -- where the proportion becoming chronic offenders is over 28 percent.

By combining these categories we can create three groups of juveniles with quite different probabilities of becoming chronic offenders. The low-risk group comprises 35 percent of the sample and has just over 1 percent become chronic offenders. The medium-risk group has almost 50 percent of the sample and just over 8 percent that will become chronic offenders. The high-risk group has 16 percent of the sample of whom more than 21 percent will become chronic offenders (Figure 5).

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<sup>13</sup> The groups at the end of each decision tree branch.

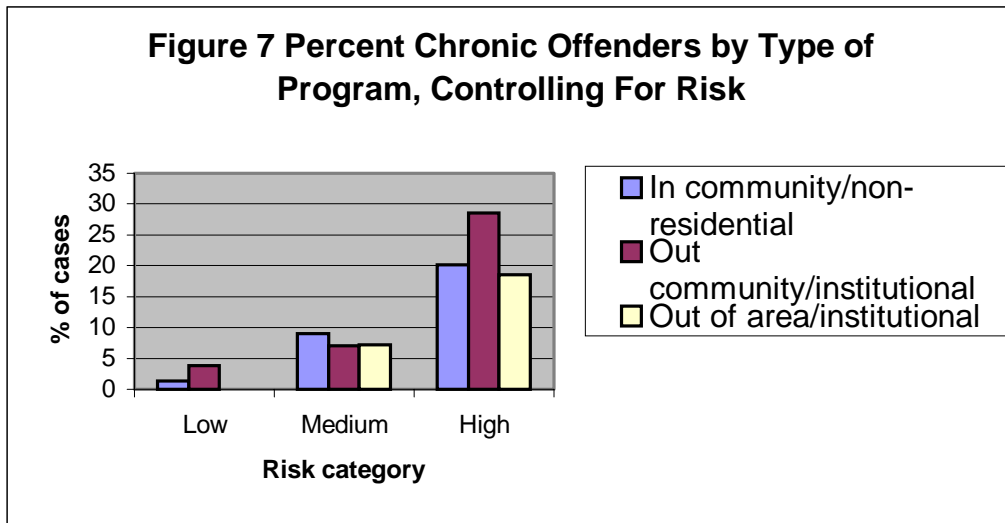
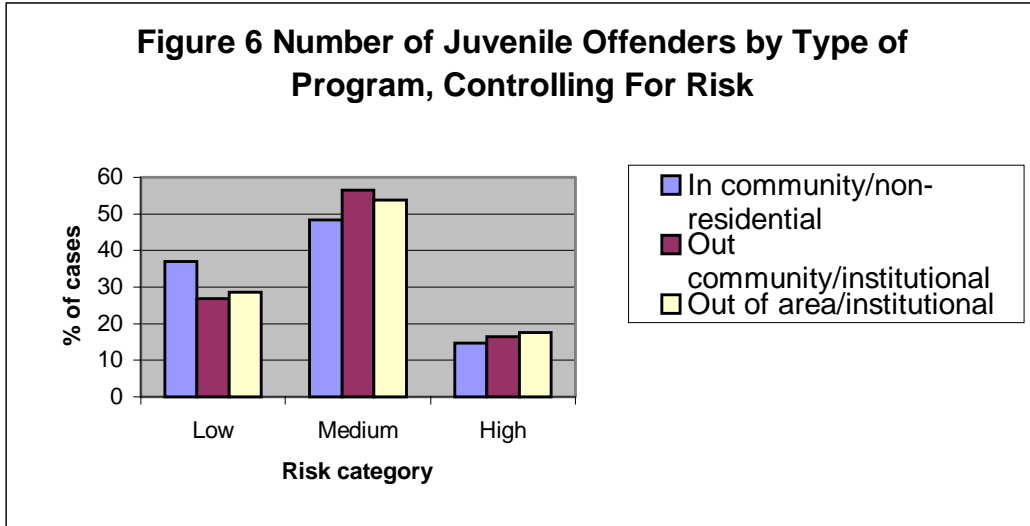
<sup>14</sup> Of course part of the explanation here is that of reduced opportunity. For 17 and 18-year old juveniles (comprising 58 percent of this group) the chance of extending their juvenile record is limited and any subsequent criminal behavior will take them into the adult system. In separate analyses we were able to track these older juveniles to determine how many received additional juvenile court petitions from the time of the current disposition to six months following discharge from the assigned program (an average period of about 15 months). Fewer than two percent received the two or more petitions that would have resulted in a chronic offender classification.



**Examples of Policy Utilization**

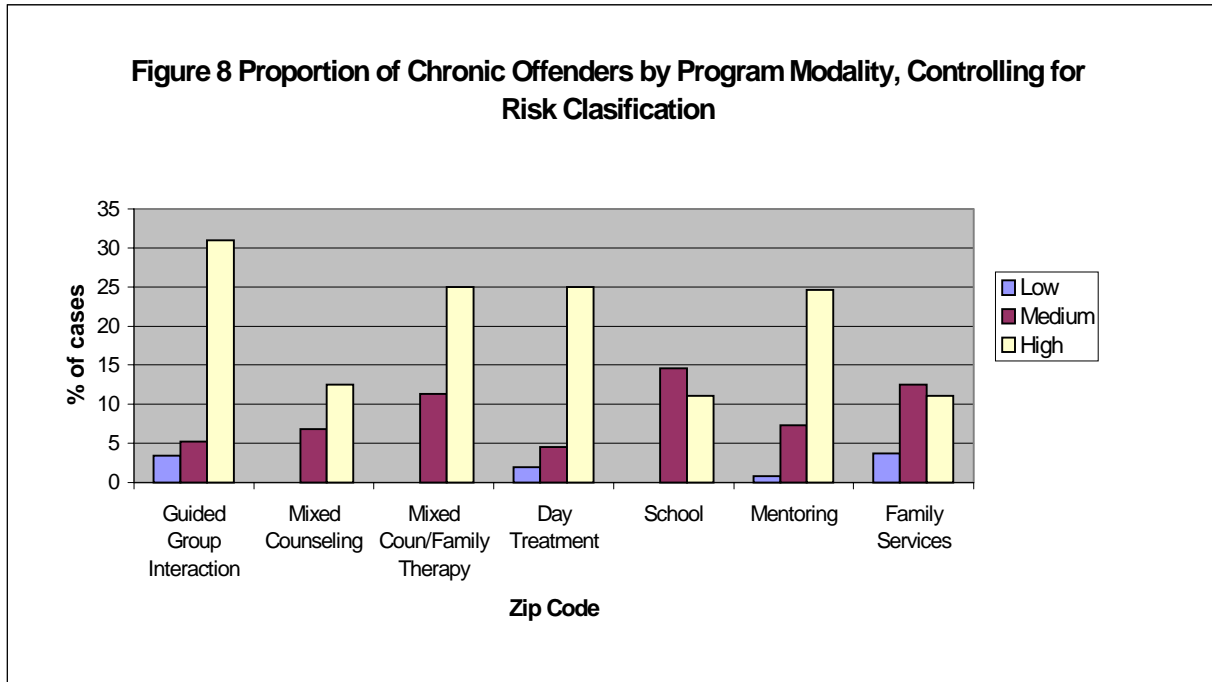
Having developed a risk of chronic offending classification we can now use it as a control when assessing the impact of such things as program interventions and neighborhood of residence in case outcomes. For example, if we compare three types of juvenile program we find that juveniles classified as high-risk of chronic offending comprise about as large a proportion of the intake to in-community/non-residential programs (mostly day treatment) as they do to out-of-area/institutional programs (Figure 6). Furthermore, the proportion of the high-risk chronic offenders who actually do become chronic offenders is about the same for both these types of programs. Clearly, this analysis focuses solely on the disposition following the instant arrest (i.e.

the one bringing them into the early delinquent cohort) and does not account for subsequent program interventions. However, it does at least show that the initial disposition to a community-based program even for juveniles with a high risk of chronic offending does not spell disaster.



An alternative way to view programs is to consider them by type of treatment modality. That is, irrespective of the particular agency providing the treatment can we identify specific intervention modalities that seem to be especially promising or problematic? Accordingly, we classified all programs utilized by Philadelphia by their primary modality and then, using the risk classification as a control examined the proportion of our early delinquents that went on to

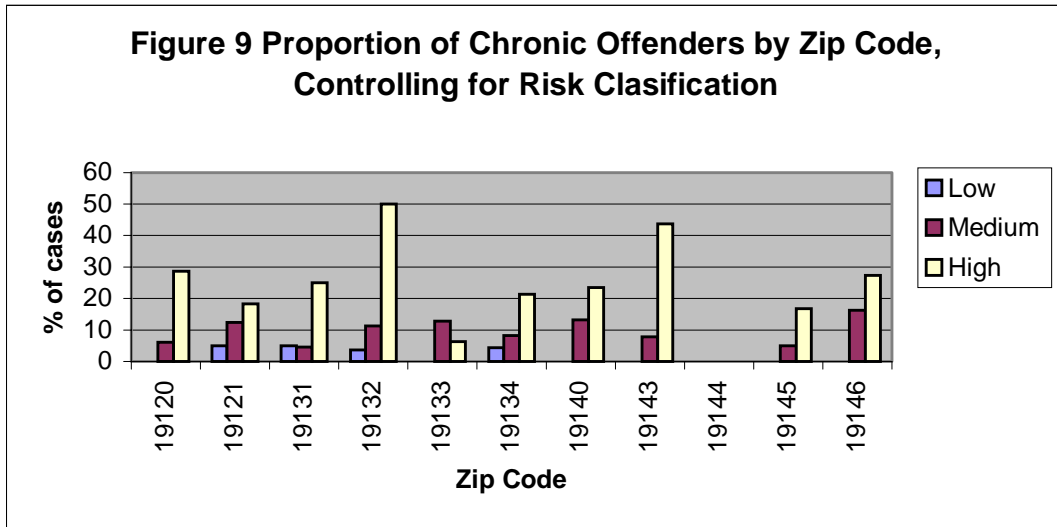
become chronic offenders.<sup>15</sup> The results shown in Figure 8 indicate some variation among intervention modalities in their outcomes for high-risk juveniles. Guided group interaction approaches seem not to work well with early delinquents (over 30 percent become chronic offenders) whereas mixed counseling and school programs have much lower rates – 13 and 11 percent of high risk juveniles become chronic offenders.



A third application of the risk classification is to consider the impact of neighborhood. Current policing research on crime ‘hot spots’ has renewed interest in the importance of place to delinquent and criminal behavior. Though the application is very general – at the level of the zip code area – it is possible to examine the effect of location in Philadelphia on chronic offending after controlling for risk. We selected those zip codes with at least 50 cases and examined the proportion of early delinquents that went on to become chronic delinquents, controlling for risk. Figure 8 shows that there is considerable evidence to support the hypothesis that location can serve to ameliorate or intensify the existing risk factors toward chronic offending. Zip code 19144 (Germantown) had no juveniles, even those classified as high risk, that went on to become chronic delinquent offenders. Zip code 19133 (North Philadelphia – primarily a Latino section)

<sup>15</sup> Again, we recognize that we are examining only the impact of the first program intervention received. However, the data do allow more complex analyses focusing on specific program ‘pathways’ or ‘couplings’ that may be

also had very low rates for the high-risk group. In contrast, zip codes 19132 (Strawberry Mansion, Stanton in North Philadelphia – mostly African American) and 19143 (Kingsessing and Cobbs Creek in West Philadelphia – mostly African American) had very high proportions of high-risk juveniles who did become chronic delinquents.



### **Summary and Discussion**

The changing pattern of juvenile crime has served to focus public and legislative attention on the question of chronic offending. Several studies have demonstrated the existence and the importance of a small number of chronic delinquents. In Orange County, California the ‘8 percent problem’ has prompted policymakers to develop a series of programmatic interventions that seek to identify chronic offenders at an early stage, and to intervene effectively to prevent the delinquent career from developing. Of course, the success of such an approach is largely dependent on our ability to correctly identify the chronic offender at the earliest possible stage.

In the present analysis we independently examined a sample of early delinquents in Philadelphia and also found that approximately 8 percent became chronic offenders (with 4 or more arrests) within a two-year period. Given the comparability of this number with Orange County we tested their recommended risk factors only to find that very few were significantly associated with eventual chronic offending despite their intuitive plausibility.

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especially promising or troublesome.

We used configural analysis to develop a classification system from the Philadelphia sample and found that a useful model could be developed. Early delinquents who were at low or high risk of becoming chronic juvenile offenders were identified. In some instances the results confirmed those of Orange County and elsewhere – certainly the need to treat juveniles with their first arrest at 15 or less differently to those aged 16 or more. Equally important however was the fact that the model did not include a range of attitudinal, personality and other measures that have received support in the literature as potential risk factors – values, self-esteem, school and family bonding etc.

With the risk model in place we were able to examine the impact of program type, program modality and neighborhood as factors that appear to inhibit or enhance chronic offending. We found that three quite different types of program (in-community non-residential, out-of-community institutional and out of area institutional) all received similar proportions of juveniles who were at high risk of chronic offending. We found that the proportion of juveniles who became chronic offenders was no higher for the non-residential programs than the other more restrictive and more expensive institutional placements. We examined programs in terms of their treatment modality and found that certain interventions with early delinquents appeared to be more successful than were others. Finally, we examined the impact of neighborhood through analysis by zip codes. The results showed clearly that significant variations exist among neighborhoods throughout the city in terms of the propensity of high-risk early delinquents to actually become chronic juvenile offenders.

In prior work we have argued that the most significant obstacle to improved implementation of risk classification research lies not with design issues, or statistical techniques, or even with poor quality data. It lies in the commonly held belief that prediction research is a very mechanical, technical procedure that brooks no policy input. This view is mistaken, and it is important that future prediction research is not conducted in a policy vacuum. Wilkins (1985) argues quite forcefully that a team approach is essential to quality predictive research and that there should be an openness and honesty in all communications between the users and producers. Unfortunately, a team approach rarely exists and it is far more likely that researchers will produce an instrument for administrators who generally know (or care) little about how the classification was derived or the use to which it can be put. Researchers, for their part, do not encourage administrators to engage in the research and, as a result, key decision

points are treated as if they were somehow value-free and outside the policy realm. The fact is that all risk classification instruments inevitably reflect not only the behavior of the people studied but the people who created them. Researchers and administrators alike have a moral responsibility to understand this fact, and to ensure that the decisions that shaped a particular instrument are explicit and public. Such accountability provides a significant improvement over decisions based on intuitive or clinical prediction since the decision-maker is relying on something other than public trust to defend his determinations.

To achieve more of a team effort in research on risk and chronic offending it is necessary that users and producers have a clearer understanding of what comprises best practice. One of the goals of the present research was to develop the dialogue between researcher and policymaker in order to produce products of the highest utility. The results of the work prove the effort to be worthwhile.

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