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# Developing Data Driven Supervision Protocols For Positive Parole Outcomes:

# Final Project Report
# 2005-IJ-CX-0029

Submitted to:

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Submitted by:

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## Executive Summary

The goal of this study was to identify and evaluate case management and supervision strategies most effective in achieving successful parole outcomes. Using the Georgia Parole Board's computer case management system, researchers: 1) analyzed over one million activities documented on 39,000 paroles to identify patterns of parolee behavior and parole officer responses that led to improved supervision outcomes; 2) collaborated with field operations management to translate the findings into new supervision protocols most predictive of success; 3) developed and deployed a tool to monitor case management systems and identify patterns of parolee behavior covered by the protocols to alert officers via e-mail; and (4) evaluated the protocols on a cohort of 1,964 new parolees entering supervision. Three supervision protocols were evaluated: positive drug test resulting in a referral to treatment, job loss followed by referral to an employment program and increased contact, and chronic technical violations responded to with an administrative hearing and enrollment in a cognitive skills program. Outcomes during a 12-month follow-up period were defined as employment, general violations of the conditions of supervision, positive drug tests, arrests for technical violations, misdemeanor and felony arrests, and revocation of parole.

Parolees in the evaluation experimental sites were less likely to be unemployed, fail a drug test, and be arrested for a technical violation during the follow-up period. However, the differences were not statistically significant. There was a statistically significant delay in the number of days until the first failed drug test, where experimental parolees lasted an additional month (34 days) before failure. On two outcomes, misdemeanor arrest and revocation of parole, the experimental parolees performed significantly worse. Since historical analyses determined that arrests and revocation occur, on average, more than 12 months after supervision begins, these findings may change with continued follow-up. Further, revocation was the only outcome not a measure of parolee behavior but an administrative response to such behavior. It may be that enhanced attention to the experimental cases resulted in increased revocation proceedings. Finally, the impact of the new supervision protocols on parole outcomes varied by protocol. The chronic technical violator protocol (with cognitive skills programming) showed the most promise by significantly reducing the volume of violations and failed drug tests for experimental parolees, and significantly delaying drug test failures.

Focus groups conducted with experimental site officers indicate the parole officers' experience with the evaluation was positive. The e-mail tool's ability to monitor combinations of violations across large caseloads increased the timing of attention to cases requiring an immediate response. The most consistent pattern to emerge in the evaluation data was the change in parole officer behavior, despite protocols that did not address officer response time expectations. Supervision of experimental cases included significantly more case interactions, more face-to-face contacts, more program referrals, and more sanctions, as well as a significantly shorter span of time between parolee violation behavior and parole officer contact, programming referrals, and sanctions. Overall, the empirically-derived protocols and associated technology positively impacted supervision by providing a helpful, ongoing case monitoring aid. This study provides preliminary evidence that data driven supervision protocols can improve both supervision practices and outcomes.

## Background

There are currently 5.1 million American adults supervised on federal, state or local probation or parole (BJS, 2008) – compared to the 1.5 million housed in federal and state prisons (West & Sabol, 2009). Our communities absorb 1,600 inmates leaving prison each day; over 600,000 offenders a year. In response, the federal government has recently focused on the critical need to help inmates "re-enter" the community by investing over $100 million in prison re-entry programs in all 50 states (Petersilia, 2004). This investment is timely, as inmates leaving American prisons today are doing less well at integrating into the community than they did just a decade ago – they are more likely to be arrested, in a shorter period of time, for a more serious offense (Petersilia, 2003). At the same time, correctional spending by states has increased by 127% in the past decade, accounting for 7% of the average state budget (Pew Charitable Trust, 2007).

According to the National Institute of Corrections (NIC), the field of community corrections is redefining its vision (Carter, 2001). Four out of five state prisoners are released to parole but less than half successfully complete their supervision (Huges & Wilson, 2004). Failures on community supervision, combined with the fiscal reality of fewer prison beds to house them, force parole agencies to develop innovative, fiscally sound supervision strategies that still ensure community safety. To aid this effort over the past fifteen years, NIC has worked with 29 parole agencies to offer technical support to develop more effective strategies to respond to supervision noncompliance (Carter, 2001; Burke, 2004). These agencies have made great strides to clarify agency goals, define violation policies, and develop systems of graduated sanctions to respond to violations (Burke, 2004).

Unfortunately, little quantitative research exists on the impact violation policies have on the performance of offenders under community supervision. NIC's initiatives in community corrections focus on policy but stop short of defining optimal practice (Carter, 2001; Burke, 2004). Moreover, despite 25 years of American experimentation with offender programs, work release programs, halfway houses, and transition centers, the academic literature presents only nine credible evaluations of prison re-entry programs (Petersilia, 2004). The largest and most comprehensive study of parole violations, undertaken in California by Joan Petersilia and her team, confirms previous research that concludes "the more you supervise the more you detect." Yet global (no risk-based) supervision policies based on detecting and responding to parole violations do not reduce recidivism (Grattet, et al., 2008). Returning a low level offender who repeatedly fails drug tests to prison, where a short stay results in minimal or nonexistent drug treatment, does nothing to stop the cycle of offending. It is no wonder parole officers and managers struggle daily with the basic question: What is the best response to a parolee's success and failures on supervision to achieve our goal of "success"?

The potential to identify optimal community supervision strategies lies in Georgia, where an innovative transactional database logs every parolee-parole officer transaction on one of the nation's largest parolee populations. The Georgia Board of Pardons and Paroles supervises 21,500 parolees with a staff of 300 parole officers. Officers would appear well

equipped to meet their goal – to safely transition offenders into the community. The agency achieved a near-perfect score (99) on its most recent re-accreditation, measured under the American Correctional Association's standards (Georgia Board of Pardons & Paroles, 2009).

Georgia parole officers make numerous decisions for a typical parolee during the course of supervision (averaging 23 months). Those decisions are aided by the Field Operations Division's *Behavior Response and Adjustment Guide* (BRAG), a detailed operations guide to defining behaviors defined as "violations" of parole supervision and a range of appropriate "sanctions" the officer may take in response (see Figure 1). Violations are ranked on a severity scale of low, medium and high. Each rank is associated with a variety of official responses the officer may implement. For example, in response to a "low" level violation of a positive drug screen, the officer may select from a list of seven possible responses, including a referral to a self help or outpatient program, a verbal warning, and a letter of reprimand. The BRAG also specifies positive parolee behaviors defined as "successes" of supervision and a range of appropriate officer responses. A "medium" level success of completing a year of school can be rewarded with one of nine options, including a reduction in reporting requirements. Each violation, success, and subsequent sanction or response is captured in the automated case management information system, along with all details of a parolee's risk, supervision status, and activities. This system, along with other state systems, was profiled in a recent NIC technical assistance manual as an example of "best practices" in parole supervision (Burke, 2004).

According to the Board's own definition, a "successful releasee…is law abiding, self sufficient, stable in employment, supporting family and dependants, and abstaining from substance use/abuse" (Georgia Board of Pardons & Paroles, 2007). The difficult decision for the officer, often in collaboration with the supervisor, is what is the best response for the specific violation or success to maximize the likelihood of a successful parole outcome? More specifically, what is the best response for this parolee, given this type of violation/success, and what is the optimal timeframe to respond?

During its years as a participant in the NIC parole violation technical support initiative, the Board has made tremendous progress toward addressing such officer concerns. They have institutionalized the use of empirically-based risk assessment tools and use the instruments to guide supervision level assignments. They achieved national recognition for their Results Driven Supervision (RDS) management philosophy (Council of State Governments, 1999), which focuses resources on programs and strategies proven to be effective in reducing recidivism. They have carefully studied their processes and have articulated a policy for responding to parolee violations through a system of graduated sanctions proven to reduce the sole reliance on prison time to effect behavior. Yet only one half of their current caseload remains crime free during supervision (Meredith, 2003).

In September 2005, the National Institute of Justice awarded the Georgia Board of Pardons and Paroles a three-year grant to conduct an extensive analysis of the supervision activities of 39,000 parolees who had completed supervision in Georgia between 2002

**Figure 1.** **Georgia Parole Behavior Response & Adjustment Guide (BRAG)**

| Suggested Response | POSITIVE --------------- BEHAVIOR ------------ NEGATIVE | | | Suggested Response |
|---|---|---|---|---|
| Verbal Recognition<br>Letter of Recognition<br>Certificate of Completion<br>6 Month Compliance Certificate | 90 Days Clean<br>90 Days Employed<br>6 months stable residence<br>Completed 1st school semester or 30 days regular GED attendance<br>Outpatient program completion<br>30 days EM violation-free<br>2 month perfect cognitive skills course attendance | L O W | Positive drug test (s)<br>Program non-attendance(s)<br>Failure to report<br>EM Violations (minor)<br>Assessment Attended No<br>Failure to support dependants<br>Unemployed (short period)<br>Special condition violation<br>Fee arrearage $60.00 or less<br>Technical Violation Other | Specific Issue Hearing<br>Outpatient program<br>Self Help program<br>PO letter of reprimand<br>PO verbal reprimand<br>Increased screening<br>Increased reporting<br>Verbal warning |
| 1 Year Compliance Certificate<br>Mr./Ms. Clean Award<br>Letter of Recognition<br>EM early termination<br>Certificate of Completion<br>Supervision level reduction<br>Reduced reporting<br>Chief Recognition<br>Decrease supervision level | 12 months stability (employment & residence, little to no violations)<br>6 months clean<br>2 months of perfect cognitive skills class attendance<br>Completed 1 year of school or 6 months of regular GED attendance<br>90 days EM violation free<br>Outpatient program completion<br>Cognitive skills course completion | M E D I U M | Misdemeanor arrest<br>Multiple positive drug tests<br>Multiple program non-attendance<br>EM violations (serious)<br>Unemployed (lengthy)<br>Assessment Attend No (multiple)<br>Sex offender violations (minor)<br>Fee arrearage $100.00 or less | Administrative Hearing<br>In-house program<br>Re-start program<br>EM extension<br>Outpatient program<br>Specific Issue Hearing<br>Increased screening<br>Increased reporting<br>Verbal reprimand Chief<br>Restorative/Community service work<br>Increase supervision level |
| Commutation Request<br>Donated Gift Certificate (GED/ school graduation)<br>Cognitive Skills Graduation<br>Lifestyle Commitment Award<br>2nd Mr./Ms. Clean award<br>Reduced reporting | 24 months stability<br>Completed school or GED<br>12 months clean<br>Volunteer work, church affiliation<br>Pro-social activities | H I G H | Felony arrest<br>Violent misdemeanor arrest or DUI<br>Positive drug tests (Critical)<br>Program non-attendance (critical)<br>Sex offender violation ( serious)<br>EM violations (critical)<br>Possession of a weapon<br>Absconding TRW issued<br>Failure to attend administrative hearing<br>Unemployed (critical)<br>Fee arrearage over $100 | Request revocation<br>Short-term incarceration (local detention)<br>Electronic monitoring<br>In-house program<br>Administrative hearing<br>Out-patient program<br>EM extension<br>Whitworth Detention Center |

and 2005. The objective was to design and evaluate research-based supervision practice protocols likely to improve the chances of parolee success. The goal of this analysis was to search for patterns of parolee behavior and parole officer responses that predict multiple supervision outcomes (drug tests, employment, violations, arrests, revocation). If the analysis could identify patterns of offender behavior and officer response that were both predictive of positive supervision outcomes and practical to replicate in the field, the patterns could be translated into new supervision protocols. The hypothesis was that the new protocols would result in measurable improvements in outcomes (fewer drug test failures, more employment, fewer violations and arrests, fewer revocations). Relying upon prior research and expertise with this data, supervision protocols were created that were offender specific (based on offender risk), behavior specific (type of violation), and time dependent.

## Research Goals and Objectives

The goal of the current project was to identify and evaluate case management and supervision strategies most effective in achieving successful parole outcomes. The project would culminate in practice protocols that a parole officer followed when presented with a parolee violating conditions of supervision or a parolee making measurable positive strides toward successful supervision completion. Specific research questions included:

- What violations, sanctions, successes, and responses occurred during the term of supervision among a cohort of 39,000 parolees completing their parole supervision between 2002 and 2004?

- What were the outcomes of each parolee's supervision experience, as measured by drug test results, employment history, violations of parole conditions, technical violation arrests, arrests for a misdemeanor or felony offense, and parole revocation back to prison during the term of supervision?

- What sanctions and responses resulted in the most favorable outcomes for each type of parole violation/success, within offender risk category?

- Do temporal and sequential patterns exist between offender activities, violations/successes, sanctions/responses, and all measured outcomes? For example, was job loss predictive of drug test failure, then drug test failure predictive of technical violation, then technical violation arrest predictive of new crime?

- What was the optimal limit in time (number of days, weeks, months) between a violation and sanction or success and response that resulted in the most favorable outcomes (examining multiple measures), within offender risk category?

- Could identified temporal and sequential patterns (behavior-violation-sanction-outcome) be used to design protocols for parole officer action?

The research indeed identified temporal and sequential patterns predictive of favorable parole outcomes and as described later, which were validated on an independent sample. Parole management determined how these validated rules were incorporated into new protocols that specified parole officer responses. The final phase of the study included an evaluation of the new protocols (identification of pattern and official reaction) on a new cohort of parolees as they began their supervision period. The goal of the evaluation was to determine if the new protocols for responding to parolee violations and successes significantly improved parole outcomes.

## Literature Review

Despite the burgeoning research on probation and parole, few rigorous studies examine the effects of different supervision strategies on criminal recidivism. Among the extant literature, most investigate caseload size and intensive probation supervision (IPS) strategies (Taxman, 2002). Researchers have spent the better part of three decades searching for the magic caseload standard and the optimal contact standard to guide probation and parole supervision strategies. Although there is widespread agreement that the relationship between the offender and the probation/parole officer is the "cornerstone" to managing offenders and changing behavior (Taxman, 2002), historical research focuses on crude, easily available measures of parolee-officer interactions, such as counting contacts or comparing outcomes between IPS and traditional probation caseloads. Unfortunately, this research has not produced a consistent relationship between increased supervision and recidivism (Taxman, 2002; Clear and Braga, 1995; Petersilia & Turner, 1993; Erwin, 1986). In fact, very little is known about the quantitative and qualitative nature of this relationship. This may explain, in part, the failure to find a relationship between contacts and recidivism. There is no empirical literature to describe the types of contacts and responses which work best for specific types of offenders.

Although the empirical literature is limited, recent NIC publications have not overlooked the multi-dimensional nature of the offender-officer relationship (Burke, 2004; Carter, 2001). In technical assistance manuals, and in several community corrections programs nationwide, there is explicit recognition that effective supervision involves numerous officer choices in responding to positive and negative parolee behavior. These manuals identify strategies to embrace accountability for negative behavior while incorporating rewards for positive behavior (Burke, 2004). In Georgia and New Jersey, for example, parole boards are establishing subjective protocols dictating what actions should be taken in response to violations within specific timelines (Burke, 2004).

Such accountability, also referred to as "procedural justice," has emerged as a new deterrence theory. Applied to community supervision, procedural justice dictates that sanctions, rewards, and the overall response to problems are explicit, consistent, swift,

certain, and progressive (Taxman et al., 1991). Contacts and supervision intensity, while important, are secondary to a strategy that incorporates certainty, timing (celerity), consistency, parsimony, proportionality, and progressiveness into the day-to-day supervision plan (Taxman et al., 1991). Yet, despite this recognition, we have known little about the precise interaction between officer and parolee and how sanctions and rewards impact offender management and produce behavioral change. Today this area of research is undergoing an exciting expansion in the area of correctional supervision of the mentally ill. Promising reductions in recidivism are found when the officer-parolee relationship is characterized as "firm but fair" (Prins and Draper, 2009). In other words, we are learning that supervision style matters, as *relational* supervision of the mentally ill results in improved outcomes over *authoritarian* supervision (Skeem, 2008).

## Research Design and Methods

The following design was employed by the research team to examine agency databases from two Georgia criminal justice agencies and answer the research questions of interest.

### Data Sources

Two state agency databases house information pertinent to the parole process in Georgia and both were migrated from their respective agency computers. The study cohort databases were developed with *SPSS for Windows* (ver 14), and contain selected fields from each database. Each agency performs internal data quality tests and analysis, and the research team selected fields based on previous analysis that met stringent data quality requirements. The following paragraphs describe each agency database, and the strategy for database linking.

Offender Tracking Information System (OTIS). The Georgia Department of Corrections and Board of Pardons & Paroles maintain the Offender Tracking Information System (OTIS), considered the most comprehensive correctional database in the nation. In operation since the early 1970s, OTIS is the correctional and parole database used to track probationers, inmates and parolees. The database includes linked records on over 500,000 offenders who have entered the state correctional system as probationers, inmates, parolees, or have moved from one type of supervision to another. OTIS relies on two fields for linking offender records. The special system-assigned Unique Identification Number (UNO) is the key field that the system uses to link an offender's records across time and correctional episodes (prison, parole, diversion center). OTIS also relies on an Inmate Number to link inmate and parolee records during a single correctional episode. OTIS includes a wide range of personal, social, legal, and institutional, as well as re-conviction and return-to-prison data.

Parole Field Log of Interaction Data (FLOID). The Board of Pardons and Paroles Field Log of Interaction Data (FLOID) database was linked to the OTIS file through the Inmate Number. The FLOID database contains daily field operations and case management information on active parolees in the state. Each day, parole officers collect and enter

data on a laptop Lotus-Notes system and upload the data to the central parole office
headquartered in Atlanta. To assist the officer in entering data on new assignments, the
FLOID system imports basic information from the Department of Corrections OTIS data
(offender identifiers, offense information, demographics, criminal history captured at
prison classification, conditions of parole release). The FLOID Parolee Table includes all
information about a parolee and supervision – including dates, identifiers, demographics,
supervising officer, supervision level assignments, risk levels, and treatment
programming. Additional FLOID tables were included in the study: residence,
employment, drug test results, program referrals, program activity, electronic monitoring,
information (type of contact), violations, successes, sanctions, warrants, arrests (technical
violation and new crimes), charges (to identify each charge at an arrest episode), and
convictions. Each table contains multiple records for a parolee for the current supervision
episode – each employment episode, each drug test, each program referral, each officer
contact, each violation, each arrest, etc. Multiple records in each table are linked by the
Inmate Number. The final merged data includes prison and probation admissions,
institutional records, and parole performance data.

## Measures

Table 1 on the next page itemizes the measures included in the study from each data
source. The conceptual framework outlined in Figure 2 guided the selection of measures
and the analytical strategy. The framework outlines the potential relationships among
offender characteristics, parole conditions and activities, supervision behavior
(violations/successes), parole officer responses, and multiple parole outcomes.

In order to adequately address the NIJ requirement of examining multiple outcomes, the
outcomes of interest in the current study included six measures of parole supervision
success:

- drug test results while under supervision
- employment while under supervision
- violations and successes while under supervision
- technical violation arrests while under supervision
- misdemeanor or felony new crime arrests while under supervision
- revocation of parole (back to prison)

Each outcome was measured in a separate FLOID table (which contained a record of
each drug test, employment episode, violation and arrest incident for all parolees), and
linked by the inmate number.

The quantity and timing of each outcome was also measured. For example, drug test data
included the number of tests, number of failures, date of each test, and type of drug used.
Employment data included the number of employment episodes, length of each episode,
and the start and end date of each episode. Arrest information included the date and all
charges by type of offense (technical violation, misdemeanor, felony). Revocation was
dichotomous (yes/no).

**Table 1.  Measures and Data Sources.**

| Measure | Operationalization | Agency/ Database | Point of Data Collection |
|---|---|---|---|
| **Outcome Variables** | | | |
| **Drug Test Results During Parole Supervision*** | Positive drug test (yes/no) # positive drug tests Ratio positive/total tests # days until first positive drug test | Parole Board FLOID | FLOID Drug Test Table (updated with each test) |
| **Employment History During Parole Supervision*** | Employed during parole (yes/no) # days employed # jobs during parole # days until first job | Parole Board FLOID | FLOID Employment Table (updated with each employment episode) |
| **Violations and Successes During Parole Supervision*** | Parole violation (yes/no) Parole success (yes/no) #/type of violations entered during supervision #/type of successes entered during supervision | Parole Board FLOID | FLOID Violations and Successes Tables (updated with each interaction) |
| **Arrest for Technical Violation Offense During Parole Supervision*** | Technical violation arrest (yes/no) #/type of technical violation arrests # days until first TV arrest by violation type | Parole Board FLOID | FLOID Arrest table FLOID Charge table (updated with each arrest) |
| **Arrest for New Offense (Misd/Felony) During Parole Supervision*** | New misd offense arrest (yes/no) New felony offense arrest (yes/no) #/type of new misd arrests #/type new felony arrests # days until first misd arrest by crime type # days until first felony arrest by crime type | Parole Board FLOID | FLOID Arrest table FLOID Charge table (updated with each arrest) |
| **Revocation of Parole Supervision** | Revocation (yes/no) Revocation type # days until revocation | Parole Board FLOID | FLOID Parolee table (updated with each parole supervision change) |

*\* Also serves as predictor variable*

**Figure 2.**

# Conceptual Model to Analyze the Relationships Between Programming, Parolee Behavior, Officer Responses, and Supervision Success
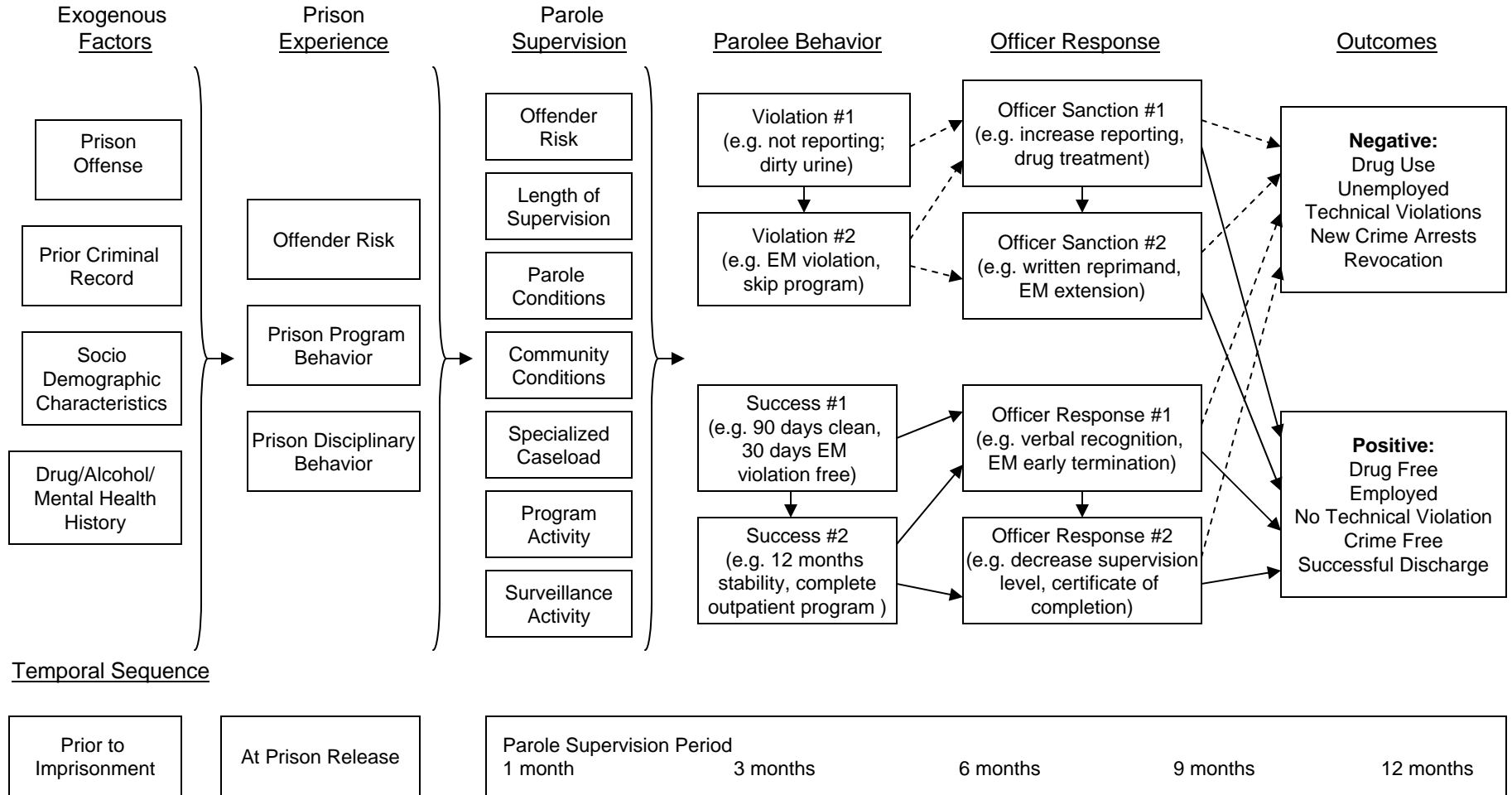
While drug test results, employment history, violations and successes, and technical violation arrests were analyzed as outcome measures, they also served as predictors of later outcomes. For example, parolee characteristics, supervision (length and level of supervision), and behaviors were possibly predictive of violations and successes. However, the Board and researchers are keenly interested in defining the predictive power of violations and successes, in combination with sanctions and responses, on the other outcomes (technical violation arrests, new crimes, and revocation).

Other variables of interest included a wide range of personal, social, legal, institutional, and parole release variables captured in the prison OTIS data described above. FLOID data provided a wide range of parole supervision data including supervising officer, supervision levels, risk levels, treatment tracks, length of supervision, and the details of all parole activities (described in the FLOID data tables above). All parolee activity data included dates (begin and end date of each event), which was critical to examining the temporal and sequential order research questions.

*Analytical Strategy*

As Taxman (2002) notes, scholars have yet to articulate a clear theoretical model for understanding supervision other than to say it falls under a form of control. There is no solid theoretical basis for forming empirical, testable, hypotheses separate and apart from testing the impact of different treatment programming (drug treatment, cognitive skills). Consequently, traditional analytical techniques for testing hypotheses would be tantamount to searching for a needle in a haystack. Therefore, the current study required a more open and dynamic analytical strategy – allowing for a wide variety of analyses on multiple outcome measures. More critically, to determine the temporal and sequential ordering of events most predictive of successful outcomes required the assimilation of hundreds of thousands of records (each parolee activity and parolee-officer interaction for the average 23 months of supervision for 39,000 parolees). To meet the project objectives, the analysis plan began with predictive analytics and data mining techniques available in *SPSS Clementine* (ver 8.0).

Data mining applies specialized algorithms to large quantities of data, examining thousands of variable combinations and temporal relationships to discover patterns that are hidden from traditional multivariate techniques. Thus, instead of testing specific hypotheses, the entire data set is searched systematically, insuring nothing is missed. Although this approach appears to be completely atheoretical and unfocused, expert judgment and a conceptual model as proposed in Figure 2 important. Such expertise guides decisions related to which data mining technique is appropriate for what data as well as what statistical and substantive criteria to use. The key is to ensure that findings are generalizable to other data, not specific to the database under investigation.

A data mining plan utilizing sequence detection was employed to determine if there is an ordering to the events of a parolee's supervision experience, ultimately leading to an outcome. Sequence detection algorithms search for sequential patterns in time-structured data. The research culminated in a list of identified temporal and sequential patterns that

can be translated into variables to test for their ability to predict parole outcomes. Thus the data mining phase helped to explain patterns of events occurring during parole supervision, which in turn guided the creation of new (event-based) predictor variables to test in the multivariate analysis for each outcome of interest. To do this, all activities leading up to the first occurrence of each outcome were identified in the large event-based file. For example, the analysis to predict misdemeanor arrest included all parole activity *up to the first misdemeanor arrest*. Parole activity variables were thus uniquely defined for each outcome. This strategy resulted in a separate database for each outcome. Each outcome database was then attached to the single parolee-based file containing static information (demographics, offense, prior record, prison classification information, prison disciplinary behavior). Thus, a parolee with three outcomes (a positive drug test *and* a misdemeanor arrest *and* a revocation) appeared in all three outcome databases, with events defined up to the specific outcome of interest in each database. A wide range of event-based predictor variables were created by counting the volume of activities prior to the outcome.

Both multivariate logistic and Cox regression analyses were utilized to identify the statistically significant predictors of dichotomous outcomes (arrested vs. not arrested). Cox regression goes a step further by taking into account the dimension of time (how long it takes for the outcome to occur) and censoring data (the lack of occurrence of an outcome simply due to the end of the study period). Logistic regression estimates a *probability* of the outcome, while Cox regression estimates a conditional hazard *rate*. The hazard ratio in Cox regression is interpreted similarly to the odds ratio in logistic regression. The multivariate analysis was conducted on a random sample of 2/3 of the historical cohort (n=26,558), then validated for each outcome on the remaining 1/3 of the cohort.

The final phase of the study entailed an evaluation of the new supervision protocols (identification of pattern and official reaction) on a new cohort of parolees as they began their time under supervision. The evaluation began fifteen months after the project start date (following the tool deployment and testing phase). New parolees entering supervision were assigned to experimental and control groups (current practice vs. new protocol), which dictated the official response of officers to parolee violations. The goal of the evaluation was to determine if the new supervision protocols significantly improved parole outcomes.

Evaluation Sampling Design. The original evaluation sampling design proposed to NIJ required new parolees to be assigned to a control group (current practice) if their inmate number ended in an odd digit, and assigned to an experimental group (new protocol) if their inmate number ends in an even digit. Six-digit inmate numbers are automatically generated at the point of the prison admission processing phase, and follow the prisoner to parole supervision (linking all OTIS and FLOID data records). While inmate number generation is random, this method would ensure that approximately 50% of cases would be assigned to the experimental group. The research team successfully implemented this random assignment process with Georgia inmates in a federal Department of Education MRT Evaluation grant (Johnson, et al., 2007).

This sampling design was subsequently abandoned for a number of reasons. First, the NIJ project oversight team (including the NIJ Community Corrections Research Network and the NIJ methodology consultant) had grave concerns about officers being assigned a mix of parolees, some in and others not in the experiment. The group agreed that officers would begin to apply the experimental protocols to cases not in the experiment. Their knowledge of the study would make it difficult to convince officers to ignore the experimental protocol for qualified control parolees – especially when they knew the new protocol was empirically based on significant predictors of supervision success. Motivated to meet the benchmarks of successful supervision set by their supervisors, officers had many reasons to bias the treatment of the control group by unofficially applying the experimental protocol concepts.

Second, when developed, the experimental protocols contained requirements for specific program participation (drug treatment and cognitive skills training).  It was clear to both the research team and parole management that the availability of such programming options was not consistent across the state. Thus, true implementation of the protocols could not be tested. Therefore, the random assignment plan was replaced with a stratified sampling design, whereby offices were selected for participation. Selection of offices was based on three criteria: the ability to supply sufficient cases for evaluation, the ability to provide both required treatment programming options to any parolee assigned to treatment, and geographic location (to ensure adequate variation).

The supervision management team selected 12 field offices to participate in the evaluation phase of the project (Savannah, Fitzgerald, Columbus, Albany, Adairsville, Lagrange, Canton, Lawrenceville, Griffin, Jonesboro, Augusta and Clarkesville), representing urban, rural, and suburban settings in each of the five geographic regions of the state. These offices received half of all new parole admissions each month statewide, a volume necessary to accommodate the study timeline.

All parolees in the 12 experimental parole offices placed on parole beginning March 1, 2007 who met the protocol criteria were subjected to the new practice protocols. The control group was defined as all parolees beginning supervision during the same time period in the remaining parole offices who also meet the protocol criteria, but who were supervised according to current practice (not following the new protocols). Parolees transferring in or out of the offices were eliminated from the study. In the control sites the parole officer's response to a parolee's violation or success was still defined by the Board's Behavior Response & Adjustment Guide (BRAG) as described in Figure 1.

While the original plan was to identify evaluation cases beginning January 2007, the evaluation phase started three months behind schedule (March 2007). Assignment of cases to the evaluation study groups was anticipated to take place for three months, resulting in a sufficient number of parolees in each group to ensure adequate statistical power for evaluation analyses. Unfortunately, the number of cases qualifying each month was lower than anticipated. Fortunately, the management team agreed to extend data gathering until December 2007. By December 31, 2007 a total of 1,964 parolees met the

eligibility criteria for inclusion in the evaluation – 629 experimental and 1,335 control parolees.

Follow-Up Period. The new parolees identified for the experimental and control groups were followed for up to 12 months, or until their parole supervision terminated (through discharge or revocation). To continue with this plan, NIJ granted a no cost extension to the project time line to permit a 12-month follow up period ending December 31, 2008. During the follow-up year, all transactions in the FLOID data tables for the full evaluation study cohort were monitored daily for identification of patterns included in the new supervision protocol.

Process and Outcomes. Identified protocol patterns were noted (and all daily history maintained), although only officers with parolees in the experimental group received e-mail notifications reminding them of adherence to the protocol. A system of monitoring e-mail transmissions, receipt, and acknowledgement was employed to ensure proper notification of the new protocol. In addition, reminder emails were employed, in order to re-notify officers of the need to employ a specific response within a specific timeframe (to adhere to the protocol). This type of evaluation data (pattern identification, officer alerts) was captured in an Oracle data table. It was critical during the follow-up period to define the activities of the parole officers in order to determine whether the experimental treatment (new protocols) was administered as planned. Field Operations Division management was intricately involved in this monitoring phase as well.

At the six and twelve-month points of the follow-up period, the research team analyzed all evaluation data. The analysis included a review of identified patterns and officer responses. All process measures described above were analyzed and reviewed to determine if adjustments to the project design were required. The outcome and predictor variables were the same for this analysis as with the historical cohort. Of key interest in this analysis was whether statistically significant differences in outcomes existed between the test and control groups. Statistical significance was assessed with t-tests and Pearson Chi-square tests for bivariate analyses, and through linear and non-linear regression-based techniques for multivariate analyses.


## Analysis and Results

The analytical goal was to search for patterns of parolee behavior and parole officer responses that predicted multiple supervision outcomes (drug tests, employment, violations, arrests, revocation). If the analysis could identify patterns of offender behavior and officer response that were both predictive of positive supervision outcomes and practical to replicate in the field, the patterns could be translated into new supervision protocols. The hypothesis was that the new protocols would result in measurable improvements in outcomes (fewer drug test failures, more employment, fewer violations and arrests, fewer revocations). Relying upon prior research and expertise with this data, supervision protocols would be offender specific (based on risk), behavior specific (type of violation), and time dependent.

The research design was implemented in four phases:

1. Analysis of historical data to identify predictors of parole success;

2. Collaboration with field operations representatives to discuss the specification of supervision protocols most predictive of success to translate into practice protocols;

3. Development and deployment of a tool to monitor automated case management data and identify sequential patterns of parolee behavior covered by the new practice protocols; and

4. Evaluation of the new practice protocols.

## Results Phase I.  Analysis of Historical Data

Phase I begun October 2005 was completed in September 2006. Preliminary results were presented to the NIJ Community Corrections Research Network in Washington D.C. on October 24, 2006. The following research questions were investigated:

- What violations, sanctions, successes, and responses occurred during the term of supervision of 39,000 parolees between 2002 and 2005?

- What are the intermediate and final outcomes of supervision as measured by drug test results, employment history, violations of parole conditions, technical violation arrests, arrests for new misdemeanor or felony offenses, and parole revocation back to prison during the term of supervision?

- Do temporal and sequential patterns exist between offender activities and all measured outcomes? For example, is job loss predictive of drug test failure, then drug test failure predictive of technical violation, then technical violation arrest predictive of new crime activity?

- What officer responses to parolee violations result in the most favorable outcomes, controlling for offender risk?

- Can identified temporal and sequential patterns (behavior-violation-sanction-outcome) be used to design strategies for parole officer action?

## The Study Cohort

A total of 39,546 parolees completed supervision in Georgia between 2002 and 2005. Of those, a cohort of 38,865 parolees was identified, defined by their first term of parole supervision during the study period (2% of offenders had multiple supervision episodes). The unit of analysis for Phase I was a parole episode. Data was extracted and merged from both the parole FLOID case management and prison OTIS data described above. Table 2 below describes the demographics of the study cohort.

**Table 2. Demographic Characteristics of the Study Cohort (N=38,865).**

|  |  | Number | Percent |
|---|---|---|---|
| Sex | Male | 33,775 | 87% |
|  | Female | 5,090 | 13% |
| Race | White | 13,954 | 36% |
|  | Nonwhite* | 24,911 | 64% |
| Average Age at Sentencing in Years |  | 31 |  |
| Average Age at Parole Discharge in Years |  | 36 |  |

* 99% of nonwhites are black.

While the majority of parolees were males, the large study cohort included over 5,000 women. Table 3 describes the study cohort in terms of prison offense behavior and basic parole supervision information. The majority of parolees (3/4) were property or drug offenders. The cohort was supervised throughout the state of Georgia, with 20% in the Metro-Atlanta area. A typical Georgia parolee was supervised for two years; 44% ended their supervision on a "high" supervision caseload. High supervision was assigned either by the parole supervision risk assessment instrument (which identified the parolee as being high risk for arrest) or by special case conditions (such as sex offender supervision). Of the study cohort, 27% ended their term of supervision with a revocation, which means they were returned to prison to serve the remainder of their sentence (or until future parole release). Nonetheless, the 73% discharged from supervision did not all reflect a "successful" outcome because an arrest while on supervision did not lead to automatic parole revocation. At the time of this analysis, approximately 60% of Georgia parolees were "successfully completing" supervision, applying the Bureau of Justice Statistics definition; which compared favorably to the national average of 46% (Glaze and Bonczar, 2007).

**Table 3. Offense and Parole Supervision Characteristics of the Study Cohort (N=38,865).**

|  |  | Number | Percent |
|---|---|---|---|
| Prison Commitment | Violent Personal | 5,714 | 15% |
| Offense | Non-Violent Personal | 297 | 1% |
|  | Property | 14,807 | 38% |
|  | Drugs | 13,347 | 34% |
|  | Other | 4,700 | 12% |
|  |  |  |  |
| Parole Region | Central | 5,853 | 16% |
|  | Metro (Atlanta) | 7,022 | 20% |
|  | Northeast | 5,124 | 14% |
|  | Northwest | 7,493 | 21% |
|  | Southeast | 5,291 | 15% |
|  | Southwest | 5,005 | 14% |
|  |  |  |  |
| Supervision | Standard | 21,388 | 55% |
| (at Discharge) | High | 17,070 | 44% |
|  | Other | 407 | 1% |
|  |  |  |  |
| Parole Release | Discharged | 28,265 | 73% |
|  | Revoked | 10,600 | 27% |
|  |  |  |  |
| Mean Months on Parole |  | 22 |  |

The study cohort had significant experience with the criminal justice system, as described in Table 4 on the next page. Two out of three parolees had multiple arrests prior to their current prison commitment, and 60% had a previous felony conviction and term of probation. Nearly half (44%) had at least one previous prison incarceration in Georgia and 43% have received prison disciplinary reports.

## *Multiple Outcomes Among the Study Cohort*

The seven outcomes of interest (dependent variables) were employment activity, violations of parole conditions, drug test results, technical violation arrests, arrests for new misdemeanor or felony offenses, and parole revocation back to prison during the term of supervision. Table 5 presents the frequency of each outcome in the study cohort.

**Table 4. Criminal Histories of the Study Cohort (N=38,865).**

|  |  | Number | Percent |
|---|---|---:|---:|
| Arrests Prior to Parole | 1 | 11,529 | 33% |
| Supervision | 2 | 7,375 | 21% |
|  | 3 | 5,569 | 16% |
|  | 4 or more | 10,642 | 30% |
|  |  |  |  |
| Prior Prison | 0 | 21,842 | 56% |
| Incarcerations | 1 | 7,872 | 20% |
|  | 2 | 4,146 | 11% |
|  | 3 | 2,298 | 6% |
|  | 4 or more | 2,707 | 7% |
|  |  |  |  |
| Total Prison | 0 | 21,921 | 57% |
| Disciplinary Reports | 1 | 6,499 | 17% |
|  | 2 | 3,191 | 8% |
|  | 3 | 1,859 | 5% |
|  | 4 or more | 5,395 | 13% |
|  |  |  |  |
| Prior Probation | 0 | 11,499 | 30% |
| Convictions | 1 | 10,528 | 27% |
|  | 2 | 7,255 | 19% |
|  | 3 | 4,351 | 11% |
|  | 4 or more | 5,232 | 13% |
|  |  |  |  |
| Total Felony | 0 | 21,874 | 56% |
| Drug Convictions | 1 | 10,982 | 28% |
|  | 2 | 4,097 | 11% |
|  | 3 | 1,331 | 3% |
|  | 4 or more | 581 | 2% |
|  |  |  |  |
| Total Violent | 0 | 33,942 | 87% |
| Felony Convictions | 1 | 4,052 | 10% |
|  | 2 | 672 | 2% |
|  | 3 | 147 | 1% |
|  | 4 or more | 52 | 0% |

**Table 5. Multiple Outcomes Among the Study Cohort (N=38,865).**

| Outcome | % of Cohort | # Parolees | Average Months to Outcome |
|---|---|---|---|
| Unemployed Throughout Parole | 27% | 10,593 | |
| Violation of Parole Conditions | 47% | 18,200 | 4.6 |
| Positive Drug Test | 41% | 15,957 | 8.2 |
| Arrest for Technical Violation | 27% | 10,316 | 12.0 |
| Arrest for New Misdemeanor Offense | 22% | 8,717 | 13.1 |
| Arrest for New Felony Offense | 27% | 10,491 | 14.1 |
| Revocation of Parole | 27% | 10,600 | 20.1 |

Since the Board had already invested years of analysis to predict the occurrence of what were described as "bad outcomes" (defined as an arrest for a new misdemeanor or felony offense while under supervision) the timing of these outcomes, rather than the occurrence of the seven outcome variables, was critical to the current study. The Board's current supervision strategy relies on risk factors that are proven to be predictive of arrest. For this project, the goal was to build on its ability to identify parolees who were "high risk" by developing appropriate responses to early parolee activities to lower risk and improve the chances of supervision success. To do this, the analysis focused on the timing of outcomes and relationships between violations and sanctions during supervision. Table 6 below presents an initial examination of the timing of each outcome, which demonstrated the high probability of outcomes occurring in the early months of supervision.

**Table 6. Timing of Multiple Outcomes Among the Study Cohort (N=38,865).**

| Outcome | % Occurring 1st 6 Months | % Occurring 1st 12 Months | % Occurring 1st 24 Months | % Occurring Anytime In Supervision |
|---|---|---|---|---|
| Violation of Parole Conditions | 38% | 43% | 45% | 47% |
| Positive Drug Test | 25% | 33% | 38% | 41% |
| Arrest for Technical Violation | 12% | 18% | 23% | 27% |
| Arrest for Misdemeanor Offense | 9% | 14% | 19% | 22% |
| Arrest for Felony Offense | 10% | 14% | 19% | 27% |
| Revocation of Parole | 4% | 11% | 20% | 27% |

Figures 3 through 8 below illustrate the timing of outcomes in terms of cumulative failure rates. Each graph depicts the critical nature of the early months of supervision, where the highest proportion of failures occurs. These graphs, along with Tables 5 and 6, also demonstrate the relative ordering of outcomes ranging from the earliest likely event (violation) to the latest (revocation). The Board desired to reduce the high level of failure in the early months of supervision by instituting supervision strategies that would not only postpone early failures but also reduce the overall failure rate.

**Figure 3.**
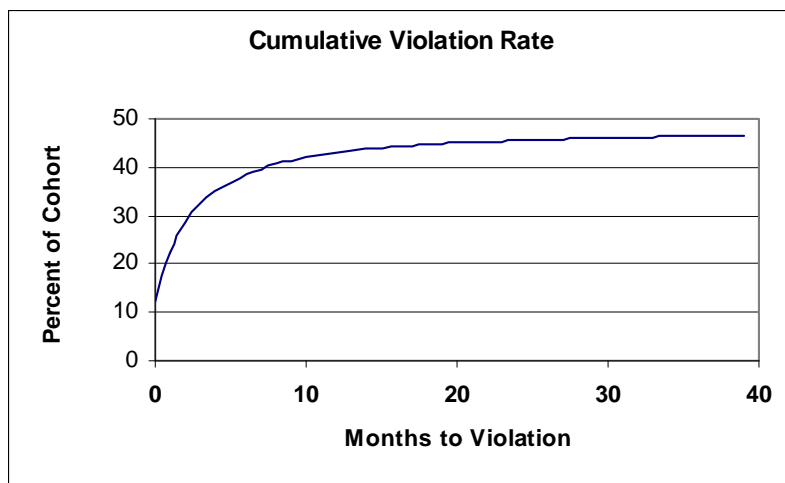


Average Months 4.6

**Figure 4.**
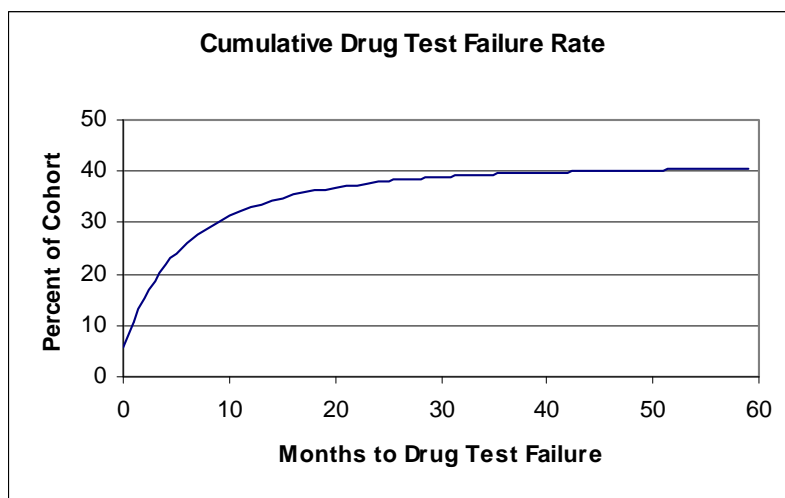


Average Months 8.2

**Figure 5.**

**Cumulative Technical Violation Arrest Rate**
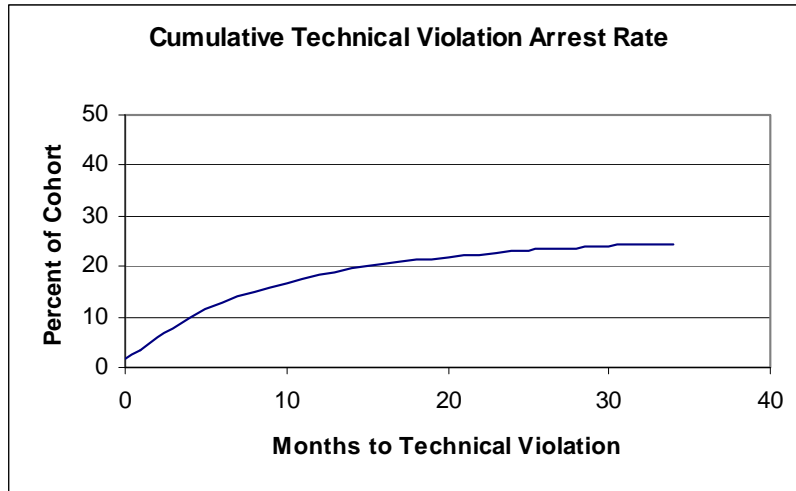


Average Months 12.0

**Figure 6.**

**Cumulative Misdemeanor Arrest Rate**
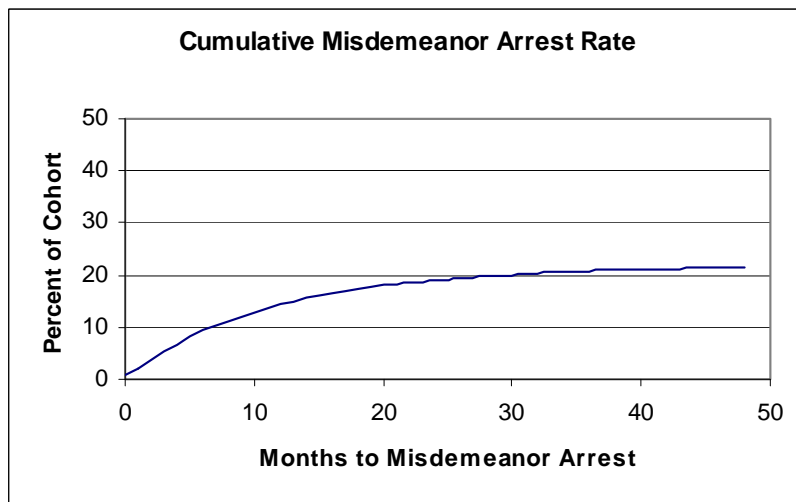


Average Months 13.1

**Figure 7.**

**Cumulative Felony Arrest Rate**
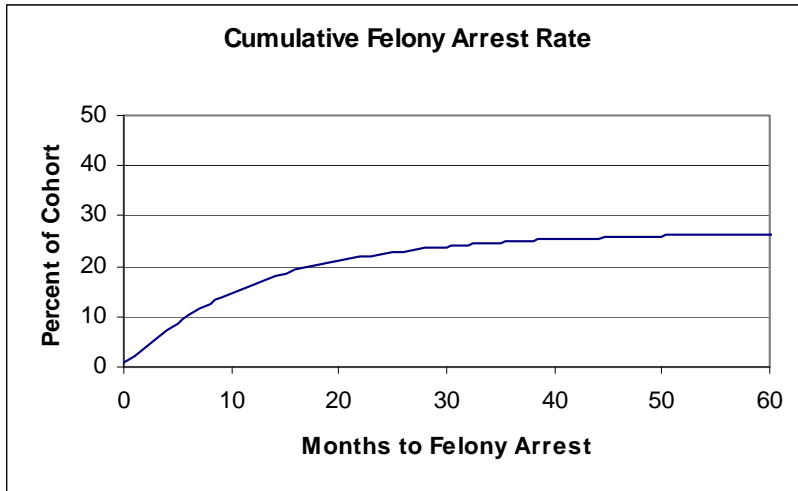


Average Months 14.1

**Figure 8.**

**Cumulative Parole Revocation Rate**



Average Months 20.1

*Developing Data Driven Supervision Protocols for Positive Parole Outcomes*
*Meredith & Prevost, 2009*
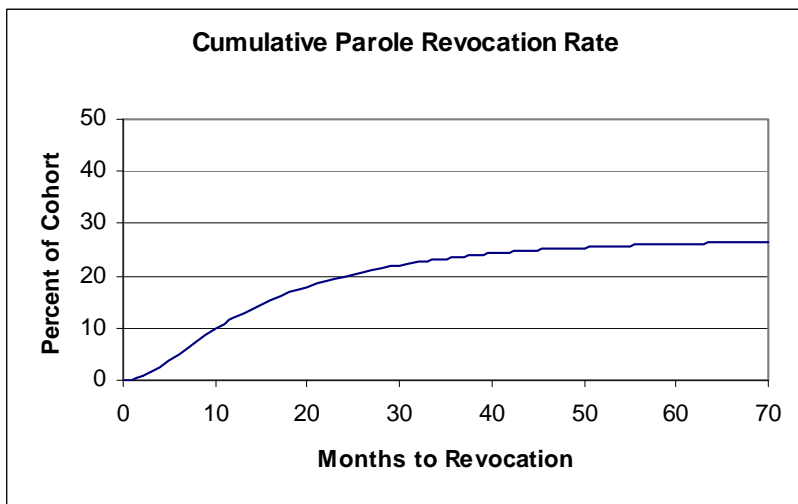
21

## Parole Violations, Sanctions and Activities in the Study Cohort

Of key interest in this study was the daily activities of supervision – including parolee violations and successes and parole officers' sanctions and responses. While the Board had collected vast amounts parole activity data over several years, it had yet to conduct any analysis on the patterns of activities and their association with outcomes. The 38,865 parolees in the study cohort accumulated over one million supervision activities described in Table 7 below. The preliminary analyses focused on mining the vast amount of daily transactional data to improve the specification of subsequent multivariate models to predict outcomes.

**Table 7. Volume and Type of Parole Activities of the Study Cohort (N=38,865).**

| Parole Event | # of Events | % of Events |
|---|---|---|
| Positive Drug Test | 43,228 | 4.2 |
| Technical Violation Arrest | 15,158 | 1.5 |
| Misdemeanor Arrest | 12,348 | 1.2 |
| Felony Arrest | 12,381 | 1.2 |
| Violent Felony Arrest | 1,595 | 0.2 |
| Revocation | 10,782 | 1.0 |
| Successful Discharge | 28,764 | 2.8 |
| Residence Start | 82,929 | 8.0 |
| Job Start | 79,383 | 7.6 |
| Job End_Discharged | 14,772 | 1.4 |
| Job End_Exemption Ended | 92 | 0.0 |
| Job End_Fired | 14,685 | 1.4 |
| Job End_Laid Off | 9,637 | 0.9 |
| Job End_New Job | 20,611 | 2.0 |
| Job End_Quit | 16,201 | 1.6 |
| Job End_Revocation | 2,375 | 0.2 |
| Program End_Cognitive Skills | 5,731 | 0.6 |
| Program End_Educaiton | 1,790 | 0.2 |
| Program End_Employment | 9,108 | 0.9 |
| Program End_Other | 1,687 | 0.2 |
| Program End_Substance Abuse | 25,246 | 2.4 |
| Program Start_Cognitive Skills | 5,812 | 0.6 |
| Program Start_Educaiton | 1,820 | 0.2 |
| Program Start_Employment | 9,145 | 0.9 |
| Program Start_Other | 1,650 | 0.2 |
| Program Start_Substance Abuse | 25,764 | 2.5 |
| Violation_Absconded | 401 | 0.0 |
| Violation_Appointment Not Kept | 2,768 | 0.3 |
| Violation_Arrest Failure To Notify | 2,185 | 0.2 |
| Violation_Assessment Attended No | 2,574 | 0.2 |
| Violation_EM (Electronic Monitoring) Curfew | 7,496 | 0.7 |
| Violation_EM Tamper Violation | 323 | 0.0 |

**Table 7. Volume and Type of Parole Activities of the Study Cohort (N=38,865), continued.**

| Parole Event | # of Events | % of Events |
|---|---|---|
| Violation_EM Violation Beyond Control | 680 | 0.1 |
| Violation_Employ Change W/O Permission | 2,948 | 0.3 |
| Violation_Failure To Pay Fees/Restitution | 8,531 | 0.8 |
| Violation_Failure To Pay For Services | 1,713 | 0.2 |
| Violation_Failure To Support Dependents | 365 | 0.0 |
| Violation_HIV Conditions | 33 | 0.0 |
| Violation_Instructions Not Followed | 20,430 | 2.0 |
| Violation_Not Truthful | 3,466 | 0.3 |
| Violation_O/S Condition | 47 | 0.0 |
| Violation_Person/Place Restitution | 674 | 0.1 |
| Violation_Possession of Weapon | 175 | 0.0 |
| Violation_No Program Attendance | 24,498 | 2.4 |
| Violation_Reporting | 17,910 | 1.7 |
| Violation_Residence Change W/O Permission | 6,380 | 0.6 |
| Violation_Use Of Alcohol | 2,045 | 0.2 |
| Violation_Violent Behavior | 806 | 0.1 |
| Sancion_Administrative Hearing | 17,264 | 1.7 |
| Sanction_EM or EM Extension | 2,412 | 0.2 |
| Sanction_Employ Search List Required | 1,349 | 0.1 |
| Sanction_Impose Curfew | 2,418 | 0.2 |
| Sanction_Increase Reporting | 4,972 | 0.5 |
| Sanction_Increase Urine Screens | 6,638 | 0.6 |
| Sanction_Local Detention | 9,185 | 0.9 |
| Sanction_Other (With Explanation) | 17,651 | 1.7 |
| Sanction_Request Final Hearing | 363 | 0.0 |
| Sanction_Request Preliminary Hearing | 68 | 0.0 |
| Sanction_Request Warrant | 11,851 | 1.1 |
| Sanction_Verbal Reprimand | 70,198 | 6.8 |
| Sanction_Whitworth (Drug Treatment) | 277 | 0.0 |
| Sanction_Written Reprimand | 9,458 | 0.9 |
| Interaction_Attitude Fair | 11,118 | 1.1 |
| Interaction_Attitude Negative | 1,384 | 0.1 |
| Interaction_Attitude Positive | 47,341 | 4.6 |
| Interaction_Fee/Restitution Collection | 125,020 | 12.0 |
| Interaction_Program Admitted | 27,230 | 2.6 |
| Interaction_Program Attendance | 112,555 | 10.8 |
| **Total Events** | **1,038,335** | **100%** |

Part of the historical analysis focused on the identification of frequently occurring sequences of events during parole supervision. *SPSS Clementine* sequence detection analysis was used to uncover event sequences leading up to each dependent variable of interest. The database developed for this analysis contained a record for each event for each of the 39,000 parolee episodes (an episode is one term of supervision) – totaling more than one million events. An event was defined as an occurrence documented on a specific date by a parole officer during a parolee's supervision period. Multiple agency data tables were accessed to define the following events: employment episodes, residential moves, program activity, drug test results, violations, sanctions, parolee-officer interactions, and arrests. Events and their dates from each table were uniquely coded and merged into a single file, then attached to parolee identifiers (inmate number, parole start and end dates). The final data file was then sorted by parolee and event date. All events occurring before the instant parole start date and after the instant parole end date were eliminated (this is required, since many parolees had been on supervision multiple times and the agency databases included all parole episodes).

The purpose of the sequence analysis was data exploration (data mining) to uncover frequently occurring patterns in parole activities, if they existed. The data mining phase uncovered many event sequences that frequently occurred among the 39,000 parolees. The most common and interesting patterns for each outcome measure were identified, and then a strategy was developed for creating event-based predictors that could be tested in the multivariate analyses (to determine if event sequences would help predict each outcome). For example, 22% of parolees had a positive drug test (violation) followed by a verbal reprimand (sanction). Of those, 61% had a subsequent positive drug test (subsequent violation). Additionally, 26% of parolees were fired from a job. Of those, 40% later had their supervision revoked.

*Multivariate Analysis of Each Outcome*

The data mining phase helped explain patterns of events occurring during parole supervision, which in turn guided the creation of new (event-based) predictor variables to test in the multivariate analysis for each outcome of interest. For example, interaction patterns were found between drug tests, employment, violations, sanctions and outcomes.

The next step determined the timing (temporal ordering) of events and whether parole events significantly helped predict outcomes. To do this, all activities leading up to the first occurrence of each outcome were identified in the large event-based file. For example, the analysis to predict misdemeanor arrest included all parole activity *up to the first misdemeanor arrest*. Parole activity variables were thus uniquely defined for each outcome. This strategy resulted in a separate database for each outcome. Each outcome database was then attached to the single parolee-based file containing static information (demographics, offense, prior record, prison classification information, prison disciplinary behavior). Thus, a parolee with three outcomes (a positive drug test *and* a misdemeanor arrest *and* a revocation) appeared in all three outcome databases, with events defined up to the specific outcome of interest in each database. A wide range of event-based predictor variables was created by counting the volume of activities prior to

the outcome, as well as counting the volume of activities per quarter prior to the outcome. In the final results, timing was sometimes an important component, depending upon the parole activity and the outcome.

In the first round of multivariate analyses, logistic regression was used to predict each dichotomous outcome (unemployed throughout parole, parole violation, positive drug test, technical violation arrest, misdemeanor arrest, felony arrest, and revocation of parole). Those results were presented in July 2006 to the NIJ grant monitoring team. After a collaborative discussion of findings with the full research team and grant monitors, it was decided that a second round of analyses using a multivariate survival analytic approach would be appropriate.

While both logistic regression and Cox regression identified the statistically significant predictors of a dichotomous outcome (arrested vs. not arrested), Cox regression goes a step further by taking into account the dimension of time (how long it takes for the outcome to occur) and censoring data (the lack of occurrence of an outcome simply due to the end of the study period). Logistic regression estimates a *probability* of the outcome, while Cox regression estimates a conditional hazard *rate*. The hazard ratio in Cox regression is interpreted similarly to the odds ratio in logistic regression. In addition, the assumptions of the Cox proportional hazards model were tested and an extension of the model using time-dependent predictors was used where appropriate. The results of the Cox regression survival multivariate analyses are summarized in Table 8 on the next page.

For all outcome measures of interest, parole supervision activities improved prediction capability when combined with static predictors. When parole activities explained an outcome, the dimension of temporal ordering was added to the events. For example, the volume of positive drug tests significantly predicted an arrest for a technical violation. However, the number of failed drug tests during the first two quarters of parole supervision was even more important (probably because 41% of technical violation arrests occurred within the first two quarters of supervision). A high volume of outcomes occurred by the 2nd quarter of parole supervision, and the events during those early quarters were often predictive of a bad outcome.

The multivariate analysis was conducted on a random sample of 2/3 of the cohort (n=26,558). The final phase of multivariate analyses validated the selected models for each outcome on the remaining 1/3 of the cohort. If the validation sample findings were significantly different from the test sample findings, a new final model was selected. Thus, the final selected models presented in Table 8 incorporate the results of the validation tests. Positive or negative symbols (+ or -) indicate the relational direction of the statistically significant predictors (as increasing or decreasing the outcome). Tables 9 through 14 present the statistical details of the final selected multivariate Cox regression models for each of six outcomes separately, all of which are summarized in Table 8. Since the seventh outcome of interest, unemployment, does not include a measure of days to the event it is included in the survival analysis as a predictor only.

**Table 8.  Significant Predictors of Each Parole Outcome, Indicated by Relationship Direction (+/-): Summary of Cox Regression Survival Models.**

| | Violation | Positive Drugs | Tech Violation Arrest | Misd Arrest | Felony Arrest | Revoked |
|---|---|---|---|---|---|---|
| Number of Significant Predictors | 14 | 21 | 16 | 17 | 22 | 18 |
| % of Study Cohort with this Outcome | 47% | 41% | 27% | 22% | 27% | 27% |

***Static Predictors***

| | Violation | Positive Drugs | Tech Violation Arrest | Misd Arrest | Felony Arrest | Revoked |
|---|---|---|---|---|---|---|
| Male (Yes=1/No=0) | + | | | + | + | + |
| Nonwhite (Yes=1/No=0) | + | + | + | + | | |
| Age at Sentencing | - | - | - | - | - | - |
| Married (Yes=1/No=0) | - | - | | | | |
| Have Kids (Yes=1/No=0) | | | | | + | |
| High School Graduate (Yes=1/No=0) | - | - | | | | |
| WRAT Reading Score | + | | | | | |
| History of Mental Hlth Treatment (Yes=1/No=0) | + | | + | + | + | + |
| History of Drug/Alcohol Problem (Yes=1/No=0) | | | + | + | + | + |
| History of Drug Problem (Yes=1/No=0) | | + | | | | + |
| History of Alcohol Problem (Yes=1/No=0) | | + | | | | |
| Primary Offense is Property (Yes=1/No=0) | + | + | | + | + | |
| Primary Offense is Drug Sale (Yes=1/No=0) | + | + | | | | |
| Primary Offense is Drug Possess (Yes=1/No=0) | + | + | | | | |
| # Previous GA Prison Episodes | + | + | + | + | + | + |
| # Prior Convictions to Probation | + | + | + | + | + | |
| # Probation Detention Episodes | | + | | | + | |
| # Prior Drug Convictions | + | | | | + | |
| # Prior Property Convictions | | | | | + | |
| # Prison Disciplinary Reports | + | | | | | + |
| # Probation Diversion Center Episodes | | | | + | | |
| History of Assaultive Behavior (Yes=1/No=0) | | | | | + | + |

*KEY:*
*+ denotes a predictor that increases the likelihood of the outcome*
*- denotes a predictor that decreases the likelihood of the outcome*

**Table 8. Significant Predictors of Each Parole Outcome, Indicated by Relationship Direction (+/-): Summary of Cox Regression Survival Models (continued).**

| | Violation | Positive Drugs | Tech Violation Arrest | Misd Arrest | Felony Arrest | Revoked |
|---|---|---|---|---|---|---|
| *Dynamic Predictors (Occurring Before the Outcome)* | | | | | | |
| Unemployed Throughout Parole (Yes=1/No=0) | | - | | | | |
| # Job Starts | | - | | | - | - |
| # Job Ends - Fired | | | | | + | |
| # Job Ends - Fired - Q1-Q2 | | | + | | | + |
| # Job Ends - Laid Off | | | | | + | |
| # Job Ends - Laid Off - Q1-Q4 | | | | | | + |
| # Job Ends - Quit | | | | | + | |
| # Job Ends - Quit - Q1-Q2 | | | + | | | |
| # Job Ends - Quit - Q1-Q4 | | | | | | + |
| # Violations – Electronic Monitoring (EM) | | + | | | | |
| # Violations - EM - Q1-Q2 | | | + | + | | |
| # Violations - EM - Q1-Q4 | | | | | | |
| # Violations - Move without Permission | | | | | | + |
| # Violations - Move w/o Permission - Q1-Q4 | | | + | | | |
| # Violations - No Program Attendance | | + | | | | + |
| # Violations - No Program Attend - Q1-Q2 | | | | + | | |
| # Violations - No Program Attend - Q1-Q4 | | | | | + | |
| # Violations - Instructions - Q1-Q2 | | | + | | | |
| # Failed Drug Tests - Q1-Q2 | | | + | + | | |
| # Failed Drug Tests - Q1-Q4 | | | | | + | + |
| # Sanctions - Detention | | - | + | - | | |
| # Sanctions - Administrative Hearings | | | | | | - |
| # Program Ends - Cog Skills | | - | - | - | - | |
| # Program Ends - Education | | - | | - | - | |
| # Program Ends - Employment | | - | | | | |
| # Program Ends - Substance Abuse | | - | | - | - | |
| # Fee/Restitution Collections | | - | - | - | - | |
| # Technical Violation Arrests | | | | | | + |
| # Felony Arrests | | | | | | + |
| *Cox Regression Summary Statistics* | | | | | | |
| -2 Log Likelihood | 224058 | 188922 | 127646 | 103312 | 119914 | 123629 |
| Chi-square | 1140 | 4477 | 6368 | 2638 | 4320 | 9741 |
| df | 14 | 26 | 21 | 22 | 28 | 23 |
| Sig | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

*KEY:*
*+ denotes a predictor that increases the likelihood of the outcome*
*- denotes a predictor that decreases the likelihood of the outcome*

**Table 9.  Final Cox Regression Survival Model for Violation.**

| Variable | B | S.E. | Sig. | Exp(B) |
|---|---|---|---|---|
| Male (Yes/No) | 0.09 | 0.03 | 0.00 | 1.10 |
| Nonwhite (Yes/No) | 0.22 | 0.02 | 0.00 | 1.25 |
| Married (Yes/No) | -0.16 | 0.03 | 0.00 | 0.86 |
| High School Graduate (Yes/No) | -0.16 | 0.02 | 0.00 | 0.85 |
| Age at Sentencing | -0.01 | 0.00 | 0.00 | 0.99 |
| History of Mental Health Treatment (Yes/No) | 0.18 | 0.03 | 0.00 | 1.19 |
| WRAT Reading Score | 0.14 | 0.03 | 0.00 | 1.15 |
| Primary Offense is Property (Yes/No) | 0.21 | 0.02 | 0.00 | 1.23 |
| Primary Offense is Drug Sale (Yes/No) | 0.14 | 0.03 | 0.00 | 1.15 |
| Primary Offense is Drug Possess (Yes/No) | 0.14 | 0.03 | 0.00 | 1.15 |
| # Previous GA Prison Episodes | 0.09 | 0.01 | 0.00 | 1.09 |
| # Prior Convictions to Probation | 0.07 | 0.01 | 0.00 | 1.07 |
| # Prison Disciplinary Reports | 0.02 | 0.00 | 0.00 | 1.02 |
| # Prior Drug Convictions | 0.10 | 0.01 | 0.00 | 1.11 |

| | |
|---|---|
| -2 Log Likelihood | 218522.24 |
| Chi-square | 1101.79 |
| df | 14 |
| Sig | 0.00 |

**Table 10.  Final Cox Regression Survival Model for First Positive Drug Test.**

| Variable | B | S.E. | Sig. | Exp(B) |
|---|---|---|---|---|
| *Static Predictors* | | | | |
| Nonwhite (Yes/No) | 0.16 | 0.02 | 0.00 | 1.18 |
| Married (Yes/No) | -0.23 | 0.03 | 0.00 | 0.79 |
| High School Graduate (Yes/No) | -0.23 | 0.02 | 0.00 | 0.79 |
| Age at Sentencing | -0.01 | 0.00 | 0.00 | 0.99 |
| History of Drug Problem (Yes/No) | 0.30 | 0.05 | 0.00 | 1.35 |
| History of Alcohol Problem (Yes/No) | 0.13 | 0.02 | 0.00 | 1.14 |
| Primary Offense is Property (Yes/No) | 0.19 | 0.03 | 0.00 | 1.21 |
| Primary Offense is Drug Sale (Yes/No) | 0.25 | 0.03 | 0.00 | 1.28 |
| Primary Offense is Drug Possess (Yes/No) | 0.31 | 0.03 | 0.00 | 1.37 |
| # Prior Convictions to Probation | 0.07 | 0.01 | 0.00 | 1.07 |
| # Probation Detention Episodes | 0.14 | 0.01 | 0.00 | 1.15 |
| # Previous GA Prison Episodes | 0.10 | 0.01 | 0.00 | 1.11 |
| | | | | |
| *Dynamic Predictors (Occurring Before 1st Positive Drug Test)* | | | | |
| Unemployed Throughout Parole (Yes/No) | -0.67 | 0.03 | 0.00 | 0.51 |
| # Violations - EM | 0.08 | 0.03 | 0.00 | 1.08 |
| # Violations - No Program Attendance | 0.44 | 0.02 | 0.00 | 1.56 |
| # Sanctions - Detention | -0.56 | 0.05 | 0.00 | 0.57 |
| # Program Ends - Cog Skills | -0.91 | 0.06 | 0.00 | 0.40 |
| # Program Ends - Education | -1.04 | 0.09 | 0.00 | 0.35 |
| # Program Ends - Employment | -0.38 | 0.04 | 0.00 | 0.69 |
| # Program Ends - Substance Abuse | -0.85 | 0.03 | 0.00 | 0.43 |
| # Fee/Restitution Collections | -0.31 | 0.01 | 0.00 | 0.73 |
| *Time-Dependent Predictors (Interactions)* | | | | |
| T_# Sanctions - Detention | 0.00 | 0.00 | 0.00 | 1.00 |
| T_# Program Ends - Cog Skills | 0.00 | 0.00 | 0.00 | 1.00 |
| T_# Program Ends - Employment | 0.00 | 0.00 | 0.00 | 1.00 |
| T_# Program Ends - Substance Abuse | 0.00 | 0.00 | 0.00 | 1.00 |
| T_# Fee/Restitution Collections | 0.00 | 0.00 | 0.00 | 1.00 |

| | |
|---|---|
| -2 Log Likelihood | 185848.32 |
| Chi-square | 4423.75 |
| df | 26 |
| Sig | 0.00 |

**Table 11.  Final Cox Regression Survival Model for First Technical Violation Arrest.**

| Variable | B | S.E. | Sig. | Exp(B) |
|---|---|---|---|---|
| *Static Predictors* | | | | |
| Nonwhite (Yes/No) | 0.07 | 0.03 | 0.01 | 1.07 |
| Age at Sentencing | -0.02 | 0.00 | 0.00 | 0.98 |
| History of Mental Health Treatment (Yes/No) | 0.17 | 0.03 | 0.00 | 1.18 |
| History of Drug/Alcohol Problem (Yes/No) | 0.15 | 0.03 | 0.00 | 1.16 |
| # Previous GA Prison Episodes | 0.14 | 0.01 | 0.00 | 1.15 |
| # Prior Convictions to Probation | 0.07 | 0.01 | 0.00 | 1.07 |
| | | | | |
| *Dynamic Predictors (Occurring Before 1st Technical Violation Arrest)* | | | | |
| # Job Starts | -0.44 | 0.01 | 0.00 | 0.65 |
| # Job Ends - Quit - Q1-Q2 | 0.24 | 0.05 | 0.00 | 1.27 |
| # Job Ends - Fired - Q1-Q2 | 0.42 | 0.03 | 0.00 | 1.52 |
| # Program Ends - Cog Skills | -0.43 | 0.05 | 0.00 | 0.65 |
| # Violations - EM - Q1-Q2 | 0.23 | 0.03 | 0.00 | 1.26 |
| # Violations - Instructions - Q1-Q2 | 0.22 | 0.03 | 0.00 | 1.25 |
| # Violations - Move w/o Permission - Q1-Q4 | 0.17 | 0.05 | 0.00 | 1.18 |
| # Sanctions - Detention | 0.42 | 0.02 | 0.00 | 1.52 |
| # Failed Drug Tests - Q1-Q2 | 0.72 | 0.02 | 0.00 | 2.06 |
| # Fee/Restitution Collections | -0.26 | 0.01 | 0.00 | 0.77 |
| *Time-Dependent Predictors (Interactions)* | | | | |
| T_# Job Starts | 0.00 | 0.00 | 0.00 | 1.00 |
| T_# Job Ends - Quit - Q1-Q2 | 0.00 | 0.00 | 0.01 | 1.00 |
| T_# Program Ends - Cog Skills | 0.00 | 0.00 | 0.00 | 1.00 |
| T_# Violations - Move w/o Permission - Q1-Q4 | 0.00 | 0.00 | 0.00 | 1.00 |
| T_# Fee/Restitution Collections | 0.00 | 0.00 | 0.00 | 1.00 |

| | |
|---|---|
| -2 Log Likelihood | 125590.67 |
| Chi-square | 6308.5677 |
| df | 21 |
| Sig | 0.00 |

**Table 12.  Final Cox Regression Survival Model for First Misdemeanor Arrest.**

| Variable | B | S.E. | Sig. | Exp(B) |
|---|---|---|---|---|
| *Static Predictors* | | | | |
| Male (Yes/No) | 0.32 | 0.05 | 0.00 | 1.38 |
| Nonwhite (Yes/No) | 0.13 | 0.03 | 0.00 | 1.14 |
| Age at Sentencing | -0.03 | 0.00 | 0.00 | 0.97 |
| History of Mental Health Treatment (Yes/No) | 0.32 | 0.04 | 0.00 | 1.37 |
| History of Drug/Alcohol Problem (Yes/No) | 0.16 | 0.03 | 0.00 | 1.17 |
| Primary Offense is Property (Yes/No) | 0.10 | 0.03 | 0.00 | 1.11 |
| # Previous GA Prison Episodes | 0.15 | 0.01 | 0.00 | 1.16 |
| # Prior Convictions to Probation | 0.13 | 0.01 | 0.00 | 1.14 |
| # Probation Diversion Center Episodes | 0.12 | 0.03 | 0.00 | 1.12 |
| | | | | |
| *Dynamic Predictors (Occurring Before 1st Misdemeanor Arrest)* | | | | |
| # Program Ends - Cog Skills | -0.59 | 0.06 | 0.00 | 0.55 |
| # Program Ends - Education | -0.66 | 0.09 | 0.00 | 0.52 |
| # Program Ends - Substance Abuse | -0.72 | 0.03 | 0.00 | 0.49 |
| # Violations - EM - Q1-Q2 | 0.14 | 0.04 | 0.00 | 1.15 |
| # Violations - No Program Attend - Q1-Q2 | 0.31 | 0.05 | 0.00 | 1.36 |
| # Sanctions - Detention | -0.12 | 0.03 | 0.00 | 0.89 |
| # Failed Drug Tests - Q1-Q2 | 0.22 | 0.04 | 0.00 | 1.25 |
| # Fee/Restitution Collections | -0.27 | 0.01 | 0.00 | 0.76 |
| *Time-Dependent Predictors (Interactions)* | | | | |
| T_# Program Ends - Cog Skills | 0.00 | 0.00 | 0.00 | 1.00 |
| T_# Program Ends - Substance Abuse | 0.00 | 0.00 | 0.00 | 1.00 |
| T_# Violations - No Program Attend - Q1-Q2 | 0.00 | 0.00 | 0.00 | 1.00 |
| T_# Failed Drug Tests - Q1-Q2 | 0.00 | 0.00 | 0.00 | 1.00 |
| T_# Fee/Restitution Collections | 0.00 | 0.00 | 0.00 | 1.00 |

| | |
|---|---|
| -2 Log Likelihood | 100740.32 |
| Chi-square | 2830.43 |
| df | 22 |
| Sig | 0.00 |

**Table 13.  Final Cox Regression Survival Model for First Felony Arrest.**

| Variable | B | S.E. | Sig. | Exp(B) |
|---|---|---|---|---|
| *Static Predictors* | | | | |
| Male (Yes/No) | 0.54 | 0.05 | 0.00 | 1.72 |
| Have Kids (Yes/No) | 0.14 | 0.03 | 0.00 | 1.15 |
| Age at Sentencing | -0.05 | 0.00 | 0.00 | 0.95 |
| History of Mental Health Treatment (Yes/No) | 0.35 | 0.03 | 0.00 | 1.42 |
| History of Drug/Alcohol Problem (Yes/No) | 0.06 | 0.03 | 0.02 | 1.07 |
| Primary Offense is Property (Yes/No) | 0.21 | 0.03 | 0.00 | 1.23 |
| # Previous GA Prison Episodes | 0.13 | 0.01 | 0.00 | 1.14 |
| # Prior Convictions to Probation | 0.10 | 0.01 | 0.00 | 1.11 |
| # Probation Detention Episodes | 0.13 | 0.02 | 0.00 | 1.13 |
| # Prior Drug Convictions | 0.13 | 0.01 | 0.00 | 1.14 |
| # Prior Property Convictions | 0.06 | 0.01 | 0.00 | 1.06 |
| History of Assaultive Behavior (Yes/No) | 0.26 | 0.03 | 0.00 | 1.30 |
| | | | | |
| *Dynamic Predictors (Occurring Before 1st Felony Arrest)* | | | | |
| # Job Starts | -0.48 | 0.02 | 0.00 | 0.62 |
| # Job Ends - Quit | 0.12 | 0.02 | 0.00 | 1.13 |
| # Job Ends - Fired | 0.23 | 0.02 | 0.00 | 1.26 |
| # Job Ends - Laid Off | 0.10 | 0.03 | 0.00 | 1.10 |
| # Program Ends - Cog Skills | -0.55 | 0.05 | 0.00 | 0.58 |
| # Program Ends - Education | -0.71 | 0.10 | 0.00 | 0.49 |
| # Program Ends - Substance Abuse | -0.53 | 0.03 | 0.00 | 0.59 |
| # Violations - No Program Attend - Q1-Q4 | 0.27 | 0.02 | 0.00 | 1.31 |
| # Failed Drug Tests - Q1-Q4 | 0.13 | 0.02 | 0.00 | 1.14 |
| # Fee/Restitution Collections | -0.15 | 0.01 | 0.00 | 0.86 |
| *Time-Dependent Predictors (Interactions)* | | | | |
| T_# Job Starts | 0.00 | 0.00 | 0.00 | 1.00 |
| T_# Program Ends - Cog Skills | 0.00 | 0.00 | 0.00 | 1.00 |
| T_# Program Ends - Education | 0.00 | 0.00 | 0.00 | 1.00 |
| T_# Program Ends - Substance Abuse | 0.00 | 0.00 | 0.00 | 1.00 |
| T_# Failed Drug Tests - Q1-Q4 | 0.00 | 0.00 | 0.00 | 1.00 |
| T_# Fee/Restitution Collections | 0.00 | 0.00 | 0.00 | 1.00 |

| | |
|---|---|
| -2 Log Likelihood | 116110.87 |
| Chi-square | 4653.51 |
| df | 28 |
| Sig | 0.00 |

**Table 14.  Final Cox Regression Survival Model for Revocation.**

| Variable | B | S.E. | Sig. | Exp(B) |
|---|---|---|---|---|
| *Static Predictors* | | | | |
| Male (Yes/No) | 0.23 | 0.05 | 0.00 | 1.26 |
| Age at Sentencing | -0.02 | 0.00 | 0.00 | 0.98 |
| History of Mental Health Treatment (Yes/No) | 0.28 | 0.03 | 0.00 | 1.32 |
| History of Drug Problem (Yes/No) | 0.14 | 0.06 | 0.01 | 1.15 |
| History of Alcohol Problem (Yes/No) | 0.08 | 0.03 | 0.00 | 1.09 |
| # Previous GA Prison Episodes | 0.11 | 0.01 | 0.00 | 1.12 |
| # Prison Disciplinary Reports | 0.01 | 0.00 | 0.00 | 1.01 |
| History of Assaultive Behavior (Yes/No) | 0.22 | 0.03 | 0.00 | 1.25 |
| | | | | |
| *Dynamic Predictors (Occurring Before Revocation)* | | | | |
| # Job Starts | -0.67 | 0.01 | 0.00 | 0.51 |
| # Job Ends - Quit - Q1-Q4 | 0.28 | 0.04 | 0.00 | 1.32 |
| # Job Ends - Fired - Q1-Q2 | 0.73 | 0.03 | 0.00 | 2.08 |
| # Job Ends - Laid Off - Q1-Q4 | 0.15 | 0.06 | 0.01 | 1.16 |
| # Violations - No Program Attendance | 0.04 | 0.01 | 0.00 | 1.04 |
| # Violations - Move without Permission | 0.13 | 0.02 | 0.00 | 1.14 |
| # Failed Drug Tests - Q1-Q4 | 0.14 | 0.02 | 0.00 | 1.15 |
| # Sanctions - Administrative Hearings | -0.11 | 0.01 | 0.00 | 0.90 |
| # Tech Violation Arrests | 0.15 | 0.04 | 0.00 | 1.16 |
| # Felony Arrests | 1.51 | 0.03 | 0.00 | 4.51 |
| *Time-Dependent Predictors (Interactions)* | | | | |
| T_# Job Starts | 0.00 | 0.00 | 0.00 | 1.00 |
| T_# Failed Drug Tests - Q1-Q4 | 0.00 | 0.00 | 0.00 | 1.00 |
| T_# Job Ends - Quit - Q1-Q4 | 0.00 | 0.00 | 0.00 | 1.00 |
| T_# Job Ends - Laid Off - Q1-Q4 | 0.00 | 0.00 | 0.00 | 1.00 |
| T_# Tech Vio Arrests | 0.00 | 0.00 | 0.00 | 1.00 |

| | |
|---|---|
| -2 Log Likelihood | 118544.57 |
| Chi-square | 10926.11 |
| df | 23 |
| Sig | 0.00 |

*Summarizing the Multivariate Analysis*

The Impact of Static Factors. Table 8 reveals that only two variables statistically predicted all outcomes – age and prior prison episodes. The direction of each relationship was consistent; as age increased, the likelihood of each outcome decreased and as the number of prior prison episodes increased so did the likelihood of each outcome. Among other static predictors, race and/or gender appeared in each model (males and nonwhites were more likely to have bad outcomes). In fact, males were 33% more likely than females to be arrested for a misdemeanor and 67% more likely to be arrested for a felony.

Substance abuse history and mental health treatment history were two very consistent predictors, significantly increasing the likelihood of five and six outcomes respectively. The direction of the relationship between all of the primary offense variables and the outcomes was positive – increasing the likelihood of outcomes. Serving for a property crime was significant in four models.

Eight indicators of prior criminal history were significant across the models – with a consistent positive direction (the worse your history, the more likely the outcome). In addition, a history of assaultive behavior helped to predict felony arrest, high profile arrest, and revocation. In total, the significance of the static factors substantiated the hypothesis that to be effective, any new practice protocol based on supervision activities had to control for parolee risk.

The Impact of Parole Supervision Activities. Among the dynamic predictors, consistent patterns emerged for employment activities. While starting a job decreased the likelihood of four outcomes (technical violation arrest, felony arrest, high profile arrest, and revocation), ending a job had a detrimental impact – if the parolee was fired, laid off or quit. In fact, ending a job during the first quarters of parole supervision was predictive of bad outcomes.

A parolee on electronic monitoring (EM) was less likely to be unemployed (indicated in the logistic regression results). However, violations of EM significantly increased the likelihood of positive drug tests and arrests for technical violations and misdemeanors. Like ending jobs, EM violations during the first quarters of supervision were predictive of later failure. Failed drug tests in the first quarters of supervision consistently surfaced for all outcomes likely to occur later in supervision (except high profile arrests).

Parole sanctions, specifically for local detention time or an administrative hearing surfaced for four outcomes. While a prior detention sanction increased the likelihood of a technical violation arrest, it decreased the likelihood of failed drug tests and misdemeanor arrests. Administrative hearings reduced the likelihood of revocation. This may have been the first indication of a positive outcome occurring from the administration of specific sanctions. It is interesting to note that while verbal reprimand was by far the most frequently employed parole sanction, evidenced in Table 7, it did *not* significantly decrease the odds of *any* outcome.

Program activity surfaced for four outcomes – all with an inverse relationship (ending programs reduced the likelihood of bad outcomes). Of the specific types of programs, cognitive skills programming appeared most often. This was consistent with the Board's earlier evaluation findings of a slight decrease in recidivism with cognitive skills programming. The next step in the investigation of programs was to examine the reasons for ending programs (this study focused on measuring levels of activities more generally). However, regardless of a "successful program completion" or not, the exposure to programs appeared to have a positive effect on later parolee behavior.

Finally, some outcomes were significant predictors of other outcomes. Violations significantly increased the likelihood of later bad outcomes; unemployment significantly reduced the likelihood of failing drug tests; failing drug tests (particularly early in supervision) increased the likelihood of later outcomes; and technical violation and felony arrests increased the odds of revocation.

## Results Phase 2.  Translate Research Findings into Practice Protocols

The findings from Phase 1 were presented to the Parole Board Management and Field Operations Division key staff (the supervision management team) during the last quarter of 2006. The researchers and supervision management team collaborated to translate the findings into recommendations for practice protocols. For example, failed drug tests during the first two quarters of parole supervision were to be followed by a specific sanction (besides a verbal reprimand, shown to be ineffective). Since substance abuse programming was shown to reduce later failed drug tests and later misdemeanor and felony arrests, it made sense to employ this programming as an appropriate sanction. While an *optional* parole officer response, the management instruction was that under normal circumstances the officer should comply with the instructions in the protocol.

The management and research teams reached agreement on three specific protocols that addressed parolee behavior associated with negative outcomes and officer responses that improved outcomes. The protocols are presented in Table 15 on the next page. Each protocol addressed the parolee's risk to commit a new crime, the time period when the violation occurred after release from prison to supervision, and officer responses most likely to achieve a positive result.

**Table 15.  New Parole Supervision Protocols.**

| Protocol | Parolee Eligibility Criteria | Parole Officer Response |
|---|---|---|
| 1. Substance Abuse | 1. Supervision risk score of 7-10 (high)<br>2. Documented history of substance abuse (prison classification or parole supervision)<br>3. 1st positive drug test through urinalysis | 1. Placement in Substance Abuse Track<br>2. Referral for substance abuse assessment and follow assessment recommendations<br>3. Start drug test regimen of 1 test per month for next 6 months |
| 2. Job Loss | 1. Supervision risk score of 7-10 (high)<br>2. End job by being fired or quitting, or<br>3. No job within 30 days of supervision (not exempt from employment) | 1. Request administrative hearing with Chief<br>2. Placement in Employment Track<br>3. Referral to Labor Department or other employment service<br>4. Instruct to contact officer 1 time per week to describe activities to actively seek a job |
| 3. Chronic Violators | 1. Supervision risk score of 7-10 (high)<br>2. At least 1 prior administrative hearing<br>3. Commit any 1 of 4 violations:<br>electronic monitoring<br>not following instructions<br>not attending a program<br>moving without permission | 1. Referral for cognitive programming regardless of prior attendance (specifically MRT program, if available) |

*Selecting the Final Protocols*

The data analysis clearly demonstrated that parolees, especially those classified as high risk (called the agency's "high supervision" caseload), were frequently testing positive for drugs two or more times before parole officers made a referral to treatment. Protocol #1 was designed to move these parolees quickly to a treatment needs assessment after the first positive test. In addition to failing drug tests, information collected during the prisoner intake and diagnostics process had identified parolees with a history of substance abuse. While there was evidence that parolees under standard supervision (low and moderate risk) would also benefit from early referrals, limited treatment resources led to the decision to use this protocol only with high risk parolees (those most likely to benefit).

Protocol #2 addressed the strong relationship between working and the likelihood of committing a new crime. Moreover, leaving a job by quitting or being fired (versus leaving one job for another) was highly predictive of failure. This protocol was designed to help parole officers focus on employment. Since the analysis also found that parolees attending a cognitive skills program had a significantly lower re-arrest rate the supervision management team designed a third protocol with a required programming component. The primary cognitive program was Moral Reconation Therapy (MRT), with classes led by parole staff in local offices.

The supervision management team was anxious to embrace and implement the three protocols, especially given the number of relatively new parole officers. The general belief was that many officers, especially those with high caseloads, would not recognize the clustering of violations over time to implement the recommended action.

During the data analysis phase, the supervision management team requested additional analysis of a subset of parolees that were arrested during their supervision term for selected violent crimes (referred to by the agency as "high profile cases"). Unfortunately, the number of offenders in this group was too small to gain any meaningful statistical significance in the analysis. However, a fourth protocol was developed matching existing policy for how these cases were being supervised. The protocol provided additional assurance to field managers that no case would go unaddressed. This protocol was requested by the field management team in addition to the three NIJ study protocols. It was applied statewide and was not part of this project. It is mentioned to highlight the management team's level of acceptance of the project concept and automatic notification process and will be discussed later as a major factor that may have compromised the experimental design and subsequent outcome results.

## Results Phase 3.  Develop and Deploy a Tool to Identify Eligible Cases

Phase 3, completed during the first quarter of 2007, was a joint effort by the research team and the Parole Board's Information Technology Department. A tool was developed, tested, and deployed to monitor the agency's automated case management files and identify the sequential patterns of parolee behavior covered by the new protocols. The purpose of this tool was to identify patterns of parolee behavior covered by the new practice protocols and then alert the parole officer to the recommended course of action. The tool was similar to the agency's automated risk assessment instrument in use since 2003 – a computer program executed each night which accessed the automated case management data tables housing the required data elements.

The protocol notification process was demonstrated first for the supervision management team. It performed similar to the existing automatic e-mail notifications of supervision risk assessment changes. The management team decided the recommended parole officer responses would be *required*, with exemptions made only with permission from the office manager. During the nightly program execution, all parolees meeting the protocol criteria were flagged. If the parolee was part of the experimental group, an automatic e-mail notification was sent overnight to the parole officer. The e-mail notification language is presented in Table 16 on the next page. A reminder e-mail was sent seven days later, repeating the list of violations and the recommended response. All protocol e-mails were copied to a study mailbox and the individual items in each were saved in an Oracle database (offender name and identification number, parole date, e-mail date, follow-up date, protocol type, protocol statement, and district office). The same data elements were captured for all control cases and also saved into an Oracle database.

**Table 16.  E-Mail Notification Language for Experimental Group Officers.**

Protocol | E-Mail Notification Language
---|---

**1. Substance Abuse**

    (parolee name)          (case# _____)

qualifies for the experimental **Substance Abuse Protocol** due to:

   An automated risk assessment indicating high risk,

   A history of substance abuse, and

   A failed drug test on   (date)  .

In response, you are advised to take the following 3 actions:

   Place the parolee in the Substance Abuse Track,

   Refer the parolee for a substance abuse assessment and follow the recommendation of the assessment, &

   Start the parolee on a drug testing regime of 1 test per month for the next 6 months.

**2. Job Loss**

    (parolee name)          (case# _____)

qualifies for the experimental **Job Loss Protocol** due to:

   An automated risk assessment indicating high risk, and

   Quitting or being fired from a job on   (date)  , or

   (not finding a job within 30 days) .

In response, you are advised to take the following 4 actions:

   Request an administrative hearing with the Parole Chief, and

   Place the parolee in the Employment Track, and

   Refer the parolee to the Labor Department or other employment service, and

   Instruct the parolee to contact you 1 time per week to describe how he/she is actively seeking a job.

**3. Chronic Violators**

    (parolee name)          (case# _____)

qualifies for the experimental **Chronic Violators Protocol** due to:

   An automated risk assessment indicating high risk, and

   A prior administrative hearing on   (date)  , and

   A violation for (EM/not following instructions/not attending a program/moving without permission) on  (date)  .

In response, you are advised to take the following action:

   Refer the parolee for cognitive programming regardless of prior attendance, specifically MRT (if available).

## Results Phase 4.  Evaluation of the New Practice Protocols

The fourth and final phase of the project consisted of an evaluation of the new supervision practice protocols on a cohort of parolees as they began supervision on or after March 1, 2007. The goal was to determine if the new protocols for managing parolee violations significantly improved parole outcomes.

All parolees in the 12 experimental parole offices placed on parole beginning March 1, 2007 who met the protocol criteria were subjected to the new practice protocols. The control group was defined as all parolees beginning supervision during the same time period in the remaining parole offices who also meet the protocol criteria, but who were supervised according to current practice (not following the new protocols). Parolees transferring in or out of the offices were eliminated from the study. In the control sites the parole officer's response to a parolee's violation or success continued to be defined by the Board's Behavior Response & Adjustment Guide (see Figure 1). For example, a positive drug screen could result in any one of seven appropriate responses to be selected by the officer with guidance and approval from the chief.

The first automated e-mail was sent March 12, 2007 to the Griffin Parole Office on Protocol #1. Minor adjustments were made to the e-mails over the first few weeks. Originally, parole officers were the only recipients. At the request of field management, all e-mail notifications were copied to office managers.

Significant positive feedback was received from field managers on the value and unobtrusive nature of the e-mail notification system. The e-mail process was continually monitored and questions from field officers and managers were answered throughout the follow-up period. During December 2007 and January 2008 a survey was conducted with parole chiefs in the experimental offices to ask for their opinions of the e-mail system and protocols. The feedback was used to continually improve the process to ensure the study was meeting its goals.

By December 31, 2007 a total of 1,964 parolees met the eligibility criteria for inclusion in the evaluation. The evaluation cohort included 629 experimental and 1,335 control parolees. Table 17 on the next page describes the number of parolees that qualified for each protocol across the regions of the state. The distribution of qualifying cases represented urban, rural, and suburban areas. While the original plan was qualify cases for the evaluation phase until reaching 1,500 experimental and control cases each, the final sample size is slightly lower due only to the study's time limitations. However, the number of cases qualifying for each protocol was sufficient to allow for protocol-specific analysis.

**Table 17.  Number of Evaluation Parolees by Protocol as of December 31, 2007 (Parolees Can Receive More than One Protocol).**

**Experimental Cases**

| Parole Region | Protocol #1 Substance Abuse | Protocol #2 Job Loss | Protocol #3 Chronic Violators | Total Parolees |
|---|---|---|---|---|
| Central | 50 | 98 | 48 | 108 |
| Metro | 33 | 50 | 13 | 55 |
| Northeast | 54 | 108 | 52 | 117 |
| Northwest | 40 | 69 | 36 | 81 |
| Southeast | 74 | 111 | 37 | 132 |
| Southwest | 66 | 126 | 55 | 136 |
| Total | 317 | 562 | 241 | 629 |

**Control Cases**

| Parole Region | Protocol #1 Substance Abuse | Protocol #2 Job Loss | Protocol #3 Chronic Violators | Total Parolees |
|---|---|---|---|---|
| Central | 142 | 219 | 112 | 244 |
| Metro | 143 | 207 | 106 | 247 |
| Northeast | 67 | 115 | 33 | 128 |
| Northwest | 142 | 218 | 108 | 256 |
| Southeast | 133 | 203 | 70 | 235 |
| Southwest | 129 | 196 | 358 | 225 |
| Total | 756 | 1,158 | 487 | 1,335 |

As indicated in Table 17, the evaluation parolees were classified by each protocol for which they qualified. One half of the parolees qualified for more than one protocol; one in four qualified for all three. The research team, in discussions with the NIJ advisors, agreed to examine all protocols during the course of supervision. One year later this decision appeared justified, as the multiple protocols ran concurrently. For one half of the parolees with multiple protocols, the second protocol was qualified within the same month. This overlap in protocol application prompted a protocol-specific analysis on all parolees qualifying for each protocol, whether or not it was the first, second, or third protocol administered to that parolee. While there were a total 629 unique parolees in the experimental sites, they accumulated 1,120 total protocols. In the control sites, the 1,335 unique parolees qualified for 2,401 total protocols.

## *Evaluating Process: Parole Chiefs' Survey*

During December 2007 and January 2008 a brief telephone survey (see Table 18 below)
was completed with Chief Parole Officers managing the districts receiving e-mails. Ten
of the twelve chiefs were interviewed (83% response rate). The goal was to assess their
overall opinions of the e-mails that point out the combinations of parolee activities and
the value of the recommendations for responses. Only two of the chiefs felt the e-mails
were of little or limited value. The other eight chiefs liked receiving e-mail for three
reasons. First, the e-mails provided less experienced parole officers with a system for
identifying situations their lack of experience might cause them to miss. Second, e-mails
provided a good back-up for officers with high caseloads to help prevent parolees'
"falling through the cracks" for behavior that should receive a response. Finally, in
offices where there were veteran officers and caseloads of reasonable size, the e-mails
offered a good reminder and highlighted situations and combinations of parolee activities
and behavior that could  sometimes be missed by even the most seasoned officer.

The percent of time the action recommended in the e-mail was implemented varied by
office but was estimated to be 70% or more. Many times parole officers and chiefs had
already taken action by the time they received the e-mail, which usually arrived the day
after the triggering event. Some officers were already requiring parolees who tested
positive for drugs to attend a substance abuse assessment. Staff turnover required one
office to suspend MRT classes, the recommended action in protocol #3.

**Table 18.  Process Evaluation Telephone Survey Questions to Parole Chiefs.**

1. Are you receiving copies of the e-mails?

2. Please rate (1= poor ; 5 = excellent) the protocol e-mails on the following factors

| | | | | | | |
|---|---|---|---|---|---|---|
| a. | Timeliness | 1 | 2 | 3 | 4 | 5 |
| b. | Accuracy | 1 | 2 | 3 | 4 | 5 |
| c. | Helping PO's manage their time | 1 | 2 | 3 | 4 | 5 |
| d. | Helping PO's manage their caseloads | 1 | 2 | 3 | 4 | 5 |
| e. | Number of E-mails | 1 | 2 | 3 | 4 | 5 |
| f. | E-mail wording | 1 | 2 | 3 | 4 | 5 |

3. In what percentage of e-mails do you think the PO's are implementing the recommended actions?
   _____ %

4. In your view, overall, do the e-mails help, hurt, or have no impact on supervision in your office?

5. Are there any unintended positive or negative consequences of having the e-mail notification on:
   a. The individual PO
   b. Other staff (perhaps the Board, or secretarial staff)
   c. The parolee

6. Are there any other comments you have positive or negative about the e-mails?

The majority of chiefs noted in their response to the survey that the e-mails helped assist with supervision. Two responded that the e-mails had little or no impact. No negative consequences of the e-mail notifications were noted. Overall, in the ten offices, both chiefs and parole officers found the e-mails helpful in supervising parolees. Table 19 below presents the average ratings to the protocol e-mail components addressed in Question #2.

**Table 19. Experimental Site Parole Chiefs' Average Satisfaction with E-Mails (on a scale of 1 - 5, where 1=poor and 5=excellent).**

| | |
|---|---|
| Accuracy | 4.5 |
| Number of E-mails | 4.5 |
| Timeliness | 4.1 |
| E-mail wording | 4.0 |
| Helping PO's manage their caseloads | 3.7 |
| Helping PO's manage their time | 3.1 |

Chiefs were also asked two additional questions at the end of the interview: 'At the end of the project, if you were asked if the e-mails should continue, how would you respond?' The second question was: *If you believe they should continue, would you make any modification to improve the process?* All but two responded that they should continue and offered a variety of suggestions from minor modifications to the e-mail format, to changes in the underlying computer code to recognize actions that may have already been implemented by the officer.

*Evaluating Process: Parole Officer Focus Groups*

At the end of the evaluation period, in March 2009, two telephone focus groups were conducted with parole officers and a few parole chiefs in five of the twelve experimental sites. The goal was to discuss their overall experience with the project and e-mail system, add context, and explain patterns uncovered in the evaluation data. Table 20 on the next page lists the questions posed to the groups. The responses to the project experience were overwhelmingly positive. Officers had a clear and accurate understanding of the project and discussed their recollection of briefings by the research team and their parole chiefs. They were extremely interested in the findings – whether the evaluation analysis indicated any significant increases in positive outcomes as a result of their following the new protocols. Interestingly, they had a much higher perception of protocol adherence than indicated by the data.

**Table 20.  Process Evaluation Focus Group Questions to Parole Officers.**

1.  We'll begin with your general thoughts and comments about the project, e-mails, etc.

2.  What was your understanding of the project?

3.  What did you think about the e-mails?
    a. Were you surprised to receive them?
    b. About the combinations of violations?
    c. What they asked you to do?

4.  What were the expectations on you when you received e-mails?

5.  What was your typical response to receiving an e-mail?

6.  How did chiefs interpret receiving e-mails?

7.  Did any of the e-mails call to your attention cases that might otherwise have gone unnoticed?

8.  Have there been any new supervision requirements implemented in the last year or so?

9.  Are there other things about which you would like to receive mail notification/reminders?

10. We stopped sending the e-mail on December 31; do you miss them?

11. What are your questions for us?


In general, parole officers rarely felt "surprised" by an e-mail; they generally had a good sense of their caseload and "knew which cases" were stacking up violations and headed for trouble. The chronic violator e-mails were the most likely anticipated by officers. However, they repeatedly admitted that an e-mail would focus their attention on a case that would easily "slip through the cracks" with their heavy caseloads. Descriptions of the "squeaky wheel" theory were mentioned; whereby, e-mails awaiting the officer in the morning would obviously receive the first attention of the day. Officers repeatedly mentioned the difference associated with verbal versus written documentation of violations.  Early in the project and at their request, all the chiefs and some regional directors received copies of the protocol e-mails. Chiefs pasted mail contents into interactions they created in the parole officers' case notes. Parole officers said they felt much more accountable to respond to and address e-mails. Veteran officers and chiefs both agreed e-mails would be most helpful to newer, less experienced officers.

Officers were asked to describe any "changes" in supervision that may have occurred during the time period of the study. They reported a statewide change in responding to a parolee with a failed drug test – the new requirement requiring all parolees with first positive drug tests to be referred to an assessment. This requirement, begun in the second quarter of 2008 mandated the same response in the control offices as was required under the experimental protocol. In their view, the substance abuse protocol was simply reminding them to do what they would have done anyway. In addition, they were all very emphatic that "no changes" took place in their contact standards, including the timing and volume of case interactions or their decisions about face-to-face contacts with parolees. Officers confirmed that contact standards continue to be based solely on parolee risk classification.  This is significant when compared to their behavior during the experiment.

During discussions of any "problems" with the experimental e-mails, a consistent problem was mentioned with e-mail timing. Officers repeatedly described examples of cases that met the eligibility requirements for a protocol but where the e-mail was "not received for days." One officer commented that "nine out of ten times" he had already addressed the issue by the time the e-mail was received. This is an important point as management considers adopting this tool for future assistance in case management. First, parole officers would have to enter into the automated case management system all case activities before the system could recognize that a parolee met the requirements for a protocol. If violations had occurred but were not entered into the system, albeit known by the officer, the e-mail would not be sent until the night following the data entry of all qualifying activities. As the automated case management system currently exists, parole officers enter case activities on their laptops and then "replicate" or connect to the central office computer at least once per day to upload their newly entered case activities. This system obviously is dependent upon officers entering information as close to the time of the occurrence of the activity as possible in order to maintain a "current" view of caseload activities. Any delay in officer data entry or replication or both creates a statewide system with dated information.

Fortunately, the Parole Board is currently completing a long term project to transition the existing case management system from a Lotus Notes PC-based system to a web-based system. The new case management system will require officers to log on to a secure Internet site and enter case activities. The replication process will no longer exist, and case activities, once entered, will reflect a "real time" system of up-to-date parolee activities. Completion of the new case management system is expected by summer of 2009, making the automated protocol tool and instant e-mail notification much more timely and efficient for officers. The problems encountered in this study illustrate the critical need for this agency automation transition.

The final issue of interest to emerge from the focus groups was the decision made by management to test out their own version of a new practice protocol to address "potential high profile offenders" at the same time as the study. At the beginning the evaluation, the Director of Field Operations chose to adopt the study's automated notification tool for a fourth statewide protocol. All parole officers, regardless of whether they were in one of the study's experimental offices, received e-mail notifications on parolees who met the definition of "risk for high profile offense" (a parolee most likely to commit a violent crime during supervision as determined by a list of violations identified by supervision management). A parolee qualified for the protocol by being unemployed for 90 days, failing a drug test or acquiring a violation for not attending a program, and changing residence – all in the same 120 days.

A total of 1,290 parolees qualified for this protocol during the time period of the experiment. A total of 2,028 e-mail notices were sent to parole officers about these cases. Of the 1,964 parolees in the NIJ evaluation cohort described below, 14% qualified for this protocol. Of that 14% (269 parolees), two were arrested for a high profile crime (less than 1%). By the end of the evaluation follow-up period, a total of eleven parolees in the evaluation cohort were arrested for a high profile crime, the majority of which never

qualified for this protocol (nine parolees arrested for a high profile crime did not generate this protocol). Interestingly, every one of the eleven qualified for the experiment's Protocol #2.

The decision to move forward with this fourth protocol may have had serious implications for the study for several reasons. First, parole officers across the state, including control site parole officers, received high profile e-mail notifications. There was a considerably heightened management focus on reducing the number of high profile offenses. Every case involving a high profile protocol led to an immediate and thorough review of the parole officer's supervision. Finally, parole officers and chiefs reported in the focus groups that high profile e-mails were significantly more important than the experimental e-mails and immediate response to these e-mails was even more critical than the other three practice protocols.  This is understandable given the victim and community impact of high profile crimes.

Any change in response to parole violators in the control sites may have watered-down the impact of the study and led to underestimating the true impact of the new practice protocols. As a result, it may not be possible to fully understand or document in the analysis whether "business as usual" was affected statewide during the time of the evaluation. The question remains whether the immediacy of parole officer responses to the non-study e-mails influenced their responses to the study e-mails. If so, the environment was influenced in which to properly assess the impact of the tool on supervision behavior. Parole officer comments in the focus groups support the suspicion that an effect of the research design did occur.

*Evaluating Outcomes: Defining the 12-Month Follow-Up Period*

The 1,964 parolees who qualified for the evaluation in 2007 were each tracked for a 12-month follow-up period which ended December 31, 2008. The follow-up periods were defined uniquely for each parolee (if they qualified April 10, 2007 for an evaluation protocol the follow-up period ended April 9, 2008). Next, follow-up period parole activity and outcome data were examined. First, parole officer documentation of activities was used to indicate whether the protocol recommendation was followed. Second, all outcomes of interest that occurred during the follow-up period were identified (new violations, new drug test failures, new arrest activity, revocation). The goal was to determine to what extent parole officers in the experimental sites implemented the protocol recommendations and the differences, if any existed, in supervision outcomes across experimental and control sites.

*Comparing Experimental and Control Parolees*

Prior to examining any differences in outcomes, the experimental and control site parolees were compared. Table 21 on the next page compares the evaluation study cohorts (experimental vs. control) to the historical study cohort examined in Phase I. Some differences were anticipated between the historical and evaluation cohorts, as the evaluation cohort was comprised exclusively of high risk parolees that had already met specific violation criteria. A comparison of evaluation experimental and control groups

indicates that the two groups of parolees were very similar in terms of demographics, offense type, and prior criminal history. Only parole status was significantly different. Compared to the control group, the experimental group was more likely to be revoked as opposed to continuing on parole supervision.

**Table 21.  Comparison of Historical Study Cohort and Evaluation Study Cohort, Experimental vs. Control Parolees.**

| | | Historical Cohort | Evaluation Study Cohort: Experimental | Control | Significant Difference |
|---|---|---|---|---|---|
| Sex | Male | 87% | 89% | 91% | |
| | Female | 13% | 11% | 9% | |
| Race | White | 36% | 30% | 30% | |
| | Nonwhite | 64% | 70% | 70% | |
| Offense Type | Violent Personal | 15% | 9% | 14% | |
| | Non-Violent Personal | 1% | 0% | 0% | |
| | Property | 38% | 49% | 46% | |
| | Drugs | 34% | 35% | 33% | |
| | Other | 12% | 7% | 7% | |
| Parole Status | Current Parolee | 0% | 39% | 45% | ** |
| | Discharged | 73% | 27% | 28% | |
| | Revoked | 27% | 34% | 27% | |
| Arrests Prior to Parole Supervision | 0 | 0% | 7% | 7% | |
| | 1 | 33% | 19% | 16% | |
| | 2 | 21% | 17% | 17% | |
| | 3 | 16% | 13% | 15% | |
| | 4 or more | 30% | 44% | 45% | |
| Prior Prison Incarcerations | 0 | 56% | 23% | 22% | |
| | 1 | 20% | 22% | 23% | |
| | 2 | 11% | 16% | 18% | |
| | 3 | 6% | 16% | 15% | |
| | 4 or more | 7% | 23% | 22% | |

** $p < .01$ on difference in proportions with Chi-Square test.

## Parole Outcomes During the 12-Month Follow-Up Period

The data are weighted by parole office, the variable used for sampling stratification, prior
to comparing experimental and control cases on the multiple outcomes of interest. Table
22 below represents the sample and population proportions for all Georgia parole offices.
The proportion of cases in the evaluation cohort per parole office is similar to the
proportion of all parolee cases in the population for each office. However, conducting
statistical tests of significance on data drawn from a sample that was not selected
randomly may result in biased estimates of standard errors. To correct for this problem,
cases are weighted according to a ratio of the population proportion to sample proportion
within each strata (Henry, 1990). For example, all evaluation sample cases from the
Adairsville experimental site are weighted as 1.2 cases (or 2.1/1.8). The weighted
evaluation sample is comprised of 1,915 cases – 586 experimental and 1,330 controls.
This compares to the unweighted 1,964 cases with 629 experimental and 1,335 controls.
Once the data are weighted, the proportional representation of each parole office in the
sample matches the representation in the population. So while the August Parole Center
accounted for 5.3% of the sample in the unweighted data, in the weighted data it accounts
for 3.9% of the sample. In the findings that follow, all analyses are based on weighted
data.

**Table 22.  Comparison of Parolee Sample & Population by Parole Office
(Indicating 12 Evaluation Experimental Sites).**

| Parole Office (District) | Sample | Population | Site |
|---|---|---|---|
| ADAIRSVILLE | 1.8% | 2.1% | Experimental |
| ALBANY | 2.6% | 2.1% | Experimental |
| AMERICUS | 0.9% | 0.8% | Control |
| ATHENS | 1.1% | 1.2% | Control |
| ATLANTA DAY REPORTING CENTER | 0.0% | 0.2% | Control |
| AUGUSTA PAROLE CENTER | 5.3% | 3.9% | Experimental |
| BALDWIN | 0.0% | 0.0% | Control |
| BRUNSWICK | 0.7% | 1.1% | Control |
| CAIRO | 1.8% | 2.1% | Control |
| CANTON | 1.2% | 1.4% | Experimental |
| CARROLLTON | 1.8% | 1.2% | Control |
| CLARKESVILLE | 1.0% | 0.9% | Experimental |
| COLUMBUS | 4.5% | 3.9% | Experimental |
| CONDITIONAL TRANSFER | 0.1% | 2.1% | Control |
| CONYERS | 1.2% | 1.6% | Control |
| CORDELE | 1.4% | 1.2% | Control |
| CUTHBERT | 0.9% | 0.5% | Control |
| DAHLONEGA | 0.0% | 0.6% | Control |
| DALTON | 2.0% | 1.9% | Control |
| DEKALB PAROLE CENTER | 4.1% | 6.1% | Control |
| DOUGLAS | 1.4% | 1.1% | Control |
| DOUGLASVILLE | 2.0% | 2.1% | Control |
| DUBLIN | 2.1% | 1.5% | Control |

Table 22. Continued

| Parole Office (District) | Sample | Population | Site |
|---|---|---|---|
| ELLIJAY | 0.5% | 0.8% | Control |
| FITZGERALD | 1.8% | 1.1% | Experimental |
| GAINESVILLE | 1.4% | 1.7% | Control |
| GRIFFIN | 3.6% | 3.4% | Experimental |
| HARTWELL | 0.9% | 1.1% | Control |
| IRWIN COUNTY PAROLE | 0.0% | 0.1% | Control |
| JEFFERSON | 0.8% | 1.2% | Control |
| JESUP | 1.9% | 1.0% | Control |
| JONESBORO | 2.5% | 3.8% | Experimental |
| LAFAYETTE | 1.5% | 1.4% | Control |
| LAGRANGE | 2.6% | 2.7% | Experimental |
| LAWRENCEVILLE | 1.9% | 2.3% | Experimental |
| LOUISVILLE | 0.7% | 1.1% | Control |
| LYONS | 2.0% | 1.7% | Control |
| MACON | 2.7% | 2.2% | Control |
| MARIETTA | 2.8% | 4.5% | Control |
| MILLEDGEVILLE | 1.3% | 1.1% | Control |
| MONROE | 2.0% | 1.8% | Control |
| MOULTRIE | 1.5% | 0.8% | Control |
| NORTH FULTON | 2.5% | 2.9% | Control |
| ROME | 2.0% | 3.0% | Control |
| SAVANNAH | 6.8% | 5.5% | Experimental |
| SOUTH FULTON | 0.0% | 0.0% | Control |
| SOUTH METRO PAROLE CENTER | 4.3% | 4.9% | Control |
| SOUTH RICHMOND | 0.0% | 0.7% | Control |
| STATESBORO | 2.2% | 1.8% | Control |
| THOMASTON | 1.9% | 1.7% | Control |
| THOMASVILLE | 0.0% | 0.5% | Control |
| THOMSON | 0.6% | 0.6% | Control |
| VALDOSTA | 1.7% | 1.8% | Control |
| WARNER ROBINS | 2.4% | 1.2% | Control |
| WAYCROSS | 1.2% | 1.1% | Control |
| WEST PERIMETER | 0.0% | 0.0% | Control |
| WHITWORTH DETENTION CENTER | 3.0% | 0.2% | Control |
| | | | |
| Total | 100% | 100% | |

Table 23 on the next page compares the experimental and control cases on the same multiple outcome measures used in Phase 1. Employment and violation behavior was similar, as was felony arrest behavior. The study groups differed significantly on two of the seven outcomes; the largest differences (7%) were found with revocation.

The experimental group was less likely to be unemployed, fail a drug test, and get arrested for a technical violation during the follow-up period. However, the differences are not statistically significant. Improving employment and reducing drug use and

technical violations are issues in parole supervision because all three outcomes are significant predictors of later outcomes (arrests for new crimes and revocation) in Phase 1 (see Table 8). There was also a statistically significant delay in the number of days until the first failed drug test with experimental parolees lasting an additional month (34 days) before failure. This finding is also important because the Phase 1 analysis demonstrated the significant influence of early drug test failures on later outcomes.

On two outcomes, misdemeanor arrest and parole revocation, the experimental parolees performed significantly worse. While for the project this is a disappointing finding, the reader is cautioned to note the timing of the arrest and revocation outcomes. The Phase I analysis determined that, on average, it required more than 12 months for arrests and revocation. Therefore, it is possible that these findings may change with continued analysis over a longer follow-up period. Further, parole revocation is not a behavioral outcome measure but rather an administrative response to such behavior. Although the data did not provide insight into such, it is plausible that enhanced attention to the experimental cases led to increased in revocation proceedings.

**Table 23.  Parole Outcomes During the 12-Month Follow-Up Period (Weighted Data).**

| Outcome | Study Group | | Significant |
| --- | --- | --- | --- |
| | Experimental | Control | Difference* |
| Unemployed Throughout Parole | 32% | 35% | |
| Violation of Parole Conditions | 89% | 86% | |
| Positive Drug Test | 40% | 45% | |
| Arrest for Technical Violation | 31% | 35% | |
| Arrest for New Misdemeanor Offense | 24% | 18% | ** |
| Arrest for New Felony Offense | 27% | 24% | |
| Revocation of Parole | 34% | 27% | ** |
| Average # of Days to 1st Job | 69 | 77 | |
| Average # of Days to 1st Violation | 51 | 45 | |
| Average # of Days to 1st Positive Drug Test | 104 | 70 | ** |
| Average # of Days to Technical Violation Arrest | 115 | 110 | |
| Average # of Days to New Misdemeanor Arrest | 145 | 146 | |
| Average # of Days to New Felony Arrest | 150 | 149 | |
| Average # of Days to Revocation | 245 | 239 | |
| Total Cohort N=1,964 | N=586 | N=1,330 | |

 * $p < .05$ and ** $p < .01$ indicating significant difference in proportions with Chi-Square test for dichotomous outcomes
   and difference in means with T-test for continuous outcomes.

## Parole Activity During the 12-Month Follow-Up Period

Table 24 compares the experimental and control parolees on the type, volume, and timing of parole activities during the 12-month follow-up period. While the experimental and control groups are not significantly different in terms of violations (proportion and volume), parole officer responses to violations vary across the two groups. The experimental group was significantly more likely to receive a sanction during the follow-up period and the number of sanctions was significantly higher. The experimental group also exhibited a significantly shorter duration, nine days on average, between the first protocol e-mail and the first sanction during the follow-up period. The experimental group was significantly more likely (8%) to receive an administrative hearing sanction, and that sanction was administered at a significantly faster rate (23 days). Phase I discovered that administrative hearings could significantly reduce revocation. The level of drug testing was the same across the two groups, although the experimental group failed fewer tests (not significant).

The significant increase in referrals for program assessment among the experimental group is another indication that the protocols had an impact on parole officer behavior. Programming was a required component for all three protocols and the experimental parolees were significantly more likely to be referred for a program assessment, as well as significantly more likely to be referred for a substance abuse program assessment in particular. When a parolee is referred for an assessment and the assessment is completed, the treatment provider determines whether programming is necessary. While the experimental and control cases exhibited similar employment programming needs, the experimental parolees were significantly more likely to be enrolled in an employment program (required by Protocol #2). The experimental parolees were also enrolled in a program significantly sooner, by an average of two weeks.

Finally, the most striking differences in parole activity across the groups was observed in the volume and timing of case interactions. Interactions were documented between the study group parolees and their parole officers. Every parolee and his/her officer had face-to-face contacts during the follow-up period. Telephone calls, collateral verifications (such as residence and employment checks), and administrative file notations are not defined as face-to-face interactions. The experimental group had significantly more interactions overall, as well as significantly more face-to-face contacts with their parole officers. These interactions also occurred much earlier during supervision compared to the control group. In fact, the experimental parolees averaged only two weeks from the first protocol e-mail date before having face-to-face contact with their officer, five days sooner than the control parolees.

**Table 24.  Parole Activity During the 12-Month Follow-Up Period (Weighted Data).**

| Activity | Study Group Experimental | Control | Significant Difference* |
|---|---|---|---|
| Has an Interaction with PO | 100% | 100% | |
| Has a Face-to-Face Interaction with PO | 97% | 95% | |
| Has a Violation | 89% | 86% | |
| Has a Sanction | 80% | 72% | ** |
| Has a Sanction to Administrative Hearing | 59% | 51% | ** |
| Has a Sanction to Detention | 15% | 20% | |
| Has a Program Assessment Referral | 88% | 82% | ** |
| Referred for Cognitive Skills Assessment | 12% | 11% | |
| Referred for Education Assessment | 1% | 1% | |
| Referred for Employment Assessment | 3% | 4% | |
| Referred for Substance Abuse Assessment | 83% | 78% | ** |
| Need Cognitive Skills Program | 10% | 9% | |
| Need Education Program | 1% | 1% | |
| Need Employment Program | 3% | 4% | |
| Need Substance Abuse Program | 60% | 55% | * |
| Enrolled in Any Program | 72% | 65% | ** |
| Enrolled in Cognitive Skills Program | 18% | 16% | |
| Enrolled in MRT Cog Program | 12% | 10% | |
| Enrolled in Education Program | 2% | 2% | |
| Enrolled in Employment Program | 21% | 12% | ** |
| Enrolled in Substance Abuse Program | 55% | 53% | |
| # Interactions with PO | 81 | 67 | ** |
| # Face-to-Face Contacts with PO | 37 | 33 | ** |
| # Drug Tests | 4 | 4 | |
| # Positive Drug Tests | 0.7 | 0.9 | |
| # Violations | 10 | 11 | |
| # Sanctions | 4.4 | 4.1 | ** |
| # Program Assessment Referrals | 1.4 | 1.3 | * |
| # Program Enrollments | 1.4 | 1.2 | * |
| # Program Attendances | 17 | 19 | |
| # Program Unexcused Absences | 3 | 3 | |
| # Days Employed | 129 | 131 | |
| Average # of Days to 1st Interaction with PO | 3 | 10 | ** |
| Average # of Days to 1st Face-to-Face Contact with PO | 14 | 19 | ** |
| Average # of Days to 1st Sanction | 52 | 61 | * |
| Average # of Days to 1st Sanction to Admin Hearing | 67 | 90 | ** |
| Average # of Days to 1st Sanction to Detention | 107 | 111 | |
| Average # of Days to 1st Program Assessment Referral[+] | 69 | 68 | |
| Average # of Days from Assessment to Program[+] | 7 | 24 | * |
| Average # of Days to 1st Program[+] | 82 | 97 | ** |
| Total Cohort = 1,964 | N=586 | N=1,330 | |

* p < .05 and ** p < .01 indicating significant difference in proportions with Chi-Square test for dichotomous measures and difference in means with T-test for continuous measures.

+ Assessment and program could start prior to 1st protocol date (assume PO would not duplicate).

## Protocol #1: Substance Abuse

Developed during Phase 2 (see Table 15), Protocol #1 addressed substance abuse. To be eligible, a parolee was classified as high risk (score of 7-10 on the supervision risk assessment) and had a history of substance abuse as determined during the prison classification process or during parole supervision. The final eligibility factor that triggered the protocol was a failed drug test during parole supervision. The recommended protocol response was placement in the substance abuse program track (identified in Phase I as having a significant impact on supervision outcomes), referral to a substance abuse assessment, and drug testing at least once a month for six months. The drug test schedule was intended to catch those early drug test failures which in Phase I were predictive of later outcomes.

In the evaluation phase, a total of 1,073 new parolees qualified for this protocol. The weighted data total is 1,026 – 294 experimental and 732 controls. Table 25 compares these experimental and control parolees on outcomes and activity during the 12-months following the new protocol eligibility. The data indicates Protocol #1 had very little impact on improving outcomes. In fact, the experimental group receiving this protocol was significantly more likely to have a violation, be arrested for a misdemeanor, and have their parole revoked. The experimental group was 4% less likely to fail another drug test (after their qualifying drug test failure), but this difference was not statistically significant. However, the four week longer time period before a new positive drug test was statistically significant.

Table 25 also compares supervision activities across the parolees eligible for Protocol #1. The purpose of the protocol was to focus substance abuse treatment services on those most in need (indicated by a documented substance abuse history and drug test failure). There were no significant differences in assessment referrals and the number enrolled in treatment. Also there was no difference in the drug testing regime. Thus, there was no real difference in the experimental treatment, referred to as the "treatment dosage," across the two groups. One reason could be that the protocol flags (documented history and drug test failure) did not do a good job of identifying those in need of substance abuse treatment. Another reason may be that during the later part of the experiment, parole field management modified statewide supervision policy for responding to parolees with a suspected drug problem. Beginning the second quarter of 2008, coinciding with this evaluation, field management required parole officers to make substance abuse program assessment referrals on the first failed drug test for *all* parolees. Therefore the control sites did not follow the BRAG violation matrix as anticipated, which would offer assessment referral as only one on a list of many options for addressing a positive drug test.

While the protocol did not result in treatment regime changes, it did result in significantly more interactions and fewer days passing before the first parole officer interaction. Experimental parolees also received significantly more sanctions. The Protocol #1 results offer some evidence that increased case attention and sanctioning alone does not result in improved outcomes for substance abusers.

**Table 25.  Protocol #1: Outcomes & Activity During the 12-Month Follow-Up Period
(Weighted Data).**

| | Study Group | | Significant |
| Outcome | Experimental | Control | Difference* |
|---|---|---|---|
| Unemployed Throughout Parole | 31% | 31% | |
| Violation of Parole Conditions | 99% | 96% | * |
| Positive Drug Test | 73% | 77% | |
| Arrest for Technical Violation | 43% | 45% | |
| Arrest for New Misdemeanor Offense | 29% | 20% | ** |
| Arrest for New Felony Offense | 30% | 25% | |
| Revocation of Parole | 36% | 29% | * |
| Average # of Days to 1st Job | 70 | 75 | |
| Average # of Days to 1st Violation | 39 | 33 | |
| Average # of Days to 1st Positive Drug Test | 95 | 67 | ** |
| Average # of Days to Technical Violation Arrest | 118 | 107 | |
| Average # of Days to New Misdemeanor Arrest | 150 | 146 | |
| Average # of Days to New Felony Arrest | 148 | 154 | |
| Average # of Days to Revocation | 271 | 246 | |
| | | | |
| Activity | | | |
| Referred for Substance Abuse Assessment | 90% | 87% | |
| Need Substance Abuse Program | 73% | 71% | |
| Enrolled in Substance Abuse Program | 74% | 71% | |
| # Program Enrollments | 2 | 2 | |
| # Program Attendances | 18 | 21 | |
| # Substance Abuse Program Attendances | 14 | 16 | |
| # Days Employed | 117 | 135 | |
| # Violations | 13 | 13 | |
| # Drug Tests | 5.5 | 5.4 | |
| # Failed Drug Tests | 1.4 | 1.5 | |
| # Sanctions | 5.7 | 5.0 | * |
| # Interactions with PO | 92 | 78 | ** |
| # Face-to-Face Contacts with PO | 40 | 37 | |
| Average # of Days to 1st Interaction with PO | 2 | 5 | ** |
| Average # of Days to 1st Face-to-Face Contact with PO | 12 | 11 | |
| Average # of Days to 1st Sanction | 50 | 51 | |
| | | | |
| Total = 1,026 | N=294 | N=732 | |

\* p < .05 and ** p < .01 indicating significant difference in proportions with Chi-Square test for dichotomous measures and
   difference in means with T-test for interval measures.

*Protocol #2: Job Loss*

Developed during Phase 2 (see Table 15), Protocol #2 addressed employment. To be
eligible, a parolee was classified as high risk (score of 7-10 on the supervision risk
assessment) and had a prior administrative hearing sanction. The final eligibility factor
that triggered the protocol was the parolee being fired or quitting a job or not finding a
job within 30 days of release from prison to parole supervision. Employment activity,
specifically losing jobs, was identified in Phase I as a significant predictor of many later
outcomes. In addition, the Parole Board's supervision strategy focused heavily on
employment. The recommended response to Protocol #2 was to request an administrative
hearing with the parole chief (a specific sanction that reflects a formal reprimand), place
the parolee on the employment program track, referral for employment services, and
weekly contact to monitor the parolee's job seeking activities.

In the evaluation phase, a total of 1,720 new parolees qualified for this protocol. The
weighted data total is 1,672 – 524 experimental and 1,148 controls. Table 26 compares
these experimental and control parolees on outcomes and activity during the 12-month
period following the new protocol eligibility. The analysis indicates Protocol #2 had
some limited impact on positive outcomes. Experimental parolees were less likely to be
unemployed, fail drug tests, and were less likely to be arrested for a technical violation.
However, these improvements were not statistically significant. They were significantly
more likely to be arrested for a misdemeanor and revoked back to prison than control
parolees. Shedding a positive light on the protocol's intent, there was a significant
reduction in the amount of time to finding a job (by nearly two weeks on average) and a
significant delay (one month) until the first failed drug test.

Table 26 also compares supervision activities across the parolees eligible for Protocol #2.
Following the protocol recommendation, the experimental group was significantly more
likely to receive both an administrative hearing sanction and placement in the
employment program track; 59% of the experimental parolees received an administrative
hearing and 22% were placed in the program track. Only 16% of experimental cases
received both of the recommended responses. Even in the control sites, where such
options were available for addressing unemployment, 50% received an administrative
hearing and 13% were placed in employment programming. As recommended, the
experimental group did have significantly more officer interactions and more face-to-face
contacts. Even if the overall compliance with protocol recommendations was low to
moderate, the experimental parolees were contacted and sanctioned significantly more
quickly. The additional case work and swifter time to case attention and application of
specific sanctions may help to explain outcome differences.

**Table 26. Protocol #2: Outcomes & Activity During the 12-Month Follow-Up Period (Weighted Data).**

| Outcome | Study Group Experimental | Control | Significant Difference* |
|---|---|---|---|
| Unemployed Throughout Parole | 33% | 37% | |
| Violation of Parole Conditions | 88% | 85% | |
| Positive Drug Test | 39% | 42% | |
| Arrest for Technical Violation | 31% | 35% | |
| Arrest for New Misdemeanor Offense | 23% | 18% | * |
| Arrest for New Felony Offense | 27% | 24% | |
| Revocation of Parole | 35% | 28% | ** |
| Average # of Days to 1st Job | 71 | 83 | * |
| Average # of Days to 1st Violation | 52 | 48 | |
| Average # of Days to 1st Positive Drug Test | 105 | 77 | ** |
| Average # of Days to Technical Violation Arrest | 116 | 114 | |
| Average # of Days to New Misdemeanor Arrest | 148 | 149 | |
| Average # of Days to New Felony Arrest | 151 | 151 | |
| Average # of Days to Revocation | 242 | 242 | |
| **Activity** | | | |
| Has an Administrative Hearing | 59% | 50% | ** |
| Enrolled in Employment Program | 22% | 13% | ** |
| # Program Enrollments | 1.4 | 1.2 | * |
| # Program Attendances | 17 | 19 | |
| # Employment Program Attendances | 0.7 | 0.5 | |
| # Days Employed | 125 | 124 | |
| # Violations | 10 | 10 | |
| # Drug Tests | 4 | 4 | |
| # Failed Drug Tests | 1 | 1 | |
| # Sanctions | 4.1 | 3.9 | ** |
| # Interactions with PO | 79 | 67 | ** |
| # Face-to-Face Contacts with PO | 36 | 33 | * |
| Average # of Days to 1st Interaction with PO | 3 | 11 | ** |
| Average # of Days to 1st Face-to-Face Contact with PO | 15 | 22 | ** |
| Average # of Days to 1st Sanction | 50 | 64 | ** |
| Total = 1,672 | N=524 | N=1,148 | |

* p < .05 and ** p < .01 indicating significant difference in proportions with Chi-Square test for dichotomous measures and difference in means with T-test for interval measures.

*Protocol #3: Chronic Violators*

Developed during Phase 2 (see Table 15), Protocol #3 addressed chronic parole violators.
Eligibility required a parolee to be classified as high risk (score of 7-10 on the
supervision risk assessment) and have an administrative hearing. The final eligibility
factor that triggered the protocol was the officer recording at least one violation from a
list of four (violations of electronic monitoring, not following instructions, not attending a
program, or moving without permission). These violation types were identified in Phase I
as having significant impact on supervision outcomes. The recommended protocol
response was referral to MRT (Moral Reconation Therapy), the Board's cognitive skills
program.

In the evaluation phase, a total of 728 new parolees qualified for this protocol. The
weighted data total is 699 – 226 experimental and 473 controls. Table 27 compares these
experimental and control parolees on outcomes and activity during the 12-month period
following the new protocol eligibility. The analysis indicates Protocol #3 produced some
positive outcomes by significantly reducing the volume of violations and failed drug
tests. The experimental parolees eligible for Protocol #3 were significantly less likely to
fail a drug test. There was also a significant delay (one month) before the first failed drug
test. The experimental group also experienced a delay until the first follow-up violation
(7 days) and technical violation arrest (18 days), although not statistically significant.

Table 27 also compares supervision activities across the parolees eligible for Protocol #3.
Although the experimental group was significantly more likely to be placed in an MRT
program, this single protocol requirement was implemented by officers for only 23% of
cases. In the control sites, where MRT was one of a list of options for responding to these
chronic violators, 17% were placed in MRT. Remarkably, differences in outcomes were
found despite a low level of compliance with the protocol requirements. The explanation
may again lie in the significant differences in supervision activities. The experimental
cases had significantly more interactions with their parole officers. The timing of
activities was also different in that experimental cases recorded an officer interaction
within significantly less time (average of three days) than controls. They also had less
time to face-to-face contact and to their first sanction, although these differences were not
statistically significant. This overall increased case work, including more contact and the
swifter time to case attention and application of sanctions, may explain some of the
outcome differences.

**Table 27.  Protocol #3: Outcomes & Activity During the 12-Month Follow-Up Period (Weighted Data).**

| Outcome | Study Group Experimental | Control | Significant Difference* |
|---|---|---|---|
| Unemployed Throughout Parole | 30% | 31% | |
| Violation of Parole Conditions | 100% | 99% | |
| Positive Drug Test | 58% | 67% | * |
| Arrest for Technical Violation | 53% | 59% | |
| Arrest for New Misdemeanor Offense | 24% | 23% | |
| Arrest for New Felony Offense | 27% | 24% | |
| Revocation of Parole | 38% | 32% | |
| Average # of Days to 1st Job | 80 | 77 | |
| Average # of Days to 1st Violation | 33 | 26 | |
| Average # of Days to 1st Positive Drug Test | 97 | 63 | ** |
| Average # of Days to Technical Violation Arrest | 112 | 94 | |
| Average # of Days to New Misdemeanor Arrest | 150 | 152 | |
| Average # of Days to New Felony Arrest | 164 | 164 | |
| Average # of Days to Revocation | 277 | 269 | |
| | | | |
| Activity | | | |
| Referred for Cognitive Skills Assessment | 14% | 11% | |
| Need Cognitive Skills Program | 12% | 10% | |
| Enrolled in MRT Cog Program | 23% | 17% | * |
| # Program Enrollments | 2 | 2 | |
| # Program Attendances | 19 | 22 | |
| # Program MRT Attendances | 2 | 2 | |
| # Days Employed | 115 | 125 | |
| # Violations | 15 | 17 | * |
| # Drug Tests | 6 | 6 | |
| # Failed Drug Tests | 1 | 2 | * |
| # Sanctions | 7 | 6 | * |
| # Interactions with PO | 102 | 89 | ** |
| # Face-to-Face Contacts with PO | 45 | 41 | |
| Average # of Days to 1st Interaction with PO | 2 | 5 | ** |
| Average # of Days to 1st Face-to-Face Contact with PO | 11 | 13 | |
| Average # of Days to 1st Sanction | 36 | 42 | |
| | | | |
| Total = 699 | N=226 | N=473 | |

* p < .05 and ** p < .01 indicating significant difference in proportions with Chi-Square test for dichotomous measures and difference in means with T-test for interval measures.

*Summary of Evaluation Results*

The three supervision protocols developed in Phase 2 were applied to 1,964 new parolees (629 experimental and 1,335 control) who began supervision between March 1 and December 31, 2007. New parolees who met the qualifications for a protocol, as described in Table 8, were then placed in the evaluation cohort and tracked for 12 months. If the parolee was in one of the twelve experimental sites, the supervising officer received an automatic e-mail with the recommended protocol instructions. This e-mail was received within one day of the officer documenting in the case management system the triggering event that fulfilled the protocol requirements (a failed drug test, 30 days without a job, a specific violation). The follow-up period ended December 31, 2008. Analysis of the evaluation cohort was conducted during the first quarter of 2009.

During the evaluation period, the experimental site parole chiefs described the e-mail notification system as helpful. They estimated that the e-mail recommendations were implemented in 70% or more of the experimental cases. However, the parole officer responses captured in the automated case management system during the follow-up period indicate a much lower level of implementation. Adhering to recommendations varied by protocol; 73% of the experimental parolees qualifying for the substance abuse protocol were placed in the recommended treatment, 14% of the experimental parolees qualifying for the job loss protocol received the recommended response (administrative hearing sanction and employment program), and 23% of the experimental parolees qualifying for the chronic violator protocol received the recommended MRT programming.

The parole officers' experience with the evaluation was positive. In teleconference focus groups conducted in March 2009 with officers in five of the twelve experimental sites, officers remarked that the e-mails were typically anticipated for the targeted cases. However, they did admit that the system "kept an eye" on their large caseloads where it was easy over time to overlook combinations of violations. While logistical concerns did exist, overall the e-mails were seen as a mechanism to increase the timing of attention to cases that required an immediate response.

Given what was heard from parole officers, it was not surprising that the most consistent pattern to emerge in the evaluation data was the change in parole officer behavior. Supervising experimental cases included significantly more case interactions, more face-to-face contacts, more program referrals, and more sanctions. In addition, experimental cases had a significantly shorter span of time between meeting protocol eligibility requirements and parole officer contact, programming, and sanctions.

Parolees in the experimental sites were less likely to be unemployed, fail a drug test, and be arrested for a technical violation during the follow-up period. However, the differences are not statistically significant. Improving employment and reducing drug use and technical violations are critical to successful parole supervision, since those three outcomes were all significant predictors of later outcomes (arrests for new crimes and revocation) in Phase 1 (see Table 8). There was also a statistically significant delay in the

number of days until the first failed drug test, where experimental parolees lasted an additional month (34 days) before failure. This finding is also important, since the Phase 1 analysis demonstrated the significant influence of early drug test failures on later outcomes.

On two outcomes, misdemeanor arrest and revocation of parole, the experimental parolees performed worse. However, the reader is cautioned to note the timing of the arrest and revocation outcomes. The Phase I analysis determined that, on average, it required more than 12 months for arrests and revocation. Therefore, it is likely that these findings may change with continued analysis over a longer follow-up period. Further, revocation of parole was the only outcome not a measure of parolee behavior but an administrative response to such behavior. It may be that enhanced attention to the experimental cases resulted in the increase in revocation proceedings.

Finally, the impact of the new supervision protocols on parole outcomes varied by protocol. Protocol #1 (substance abuse) had a statistically significant effect on outcomes, with a 7% increase over the control group in revocation of parole. The experimental group was 4% less likely to fail another drug test (after their qualifying drug test failure), but this difference was not statistically significant. However, the four week longer time period before a new positive drug test was statistically significant. One would expect this later finding to be associated with an increase in the number of successful parole supervision completions.

The most likely reason for the lack of outcome differences for Protocol #1 is that both groups received the same treatment. There were no significant differences in referral to and enrollment in substance abuse treatment, and both groups received the same level of drug testing. Unfortunately, parole field management modified their statewide supervision policy for responding to parolees with a suspected drug problem during the last 6-8 months of the evaluation. Field management's new requirement of program assessment referrals on the first failed drug test for *all* parolees changed the treatment of the control group to match the experimental protocol. However, the protocol did result in significantly more parole officer interactions with the experimental parolees and fewer days passing before the first interaction. Experimental parolees also received significantly more sanctions. The Protocol #1 results offer some evidence that increased case attention and sanctioning alone does not result in improved outcomes for substance abusers.

Protocol #2 (job loss) had some limited but non-significant impact on improving outcomes. Experimental parolees were less likely to be unemployed or arrested for a technical violation. They were, however, significantly more likely to be arrested for a misdemeanor and revoked back to prison than control parolees. Conversely, their time to first positive drug test was significant longer (28 days on average).

The experimental group eligible for the job loss protocol was significantly more likely than the control group to receive the protocol recommendations – an administrative hearing with the parole chief and placement in an employment program. However, only 16% of experimental cases received both of the recommended responses. There was a

significant reduction in the amount of time to find a job (the intent of the protocol) and a significant delay until the first failed drug test.

While these experimental parolees were significantly more likely to be placed in employment programming, there was little attendance documented. It is unlikely; therefore, that programming had an impact of any significance on parolees. The experimental parolees did have more case attention and officer interaction – part of the protocol recommendation. They were contacted and sanctioned more quickly. This increase in case work, contact, and the swifter time to case attention and application of specific sanctions may help to explain outcome differences.

Protocol #3 (chronic violators) produced some impact on supervision outcomes by significantly reducing the volume of violations and failed drug tests. The experimental parolees eligible for Protocol #3 were significantly less likely to fail a drug test. There was also a significant delay (one month) before the first failed drug test. The experimental group also experienced a delay until the first follow-up violation (7 days) and technical violation arrest (18 days), although not statistically significant.

Placement in the cognitive skills MRT program was the only recommendation in Protocol #3 and the experimental parolees were significantly more likely to be placed in and receive MRT programming. Unfortunately only 23% of the experimental group, compared to 17% of the controls, received MRT programming. There were once again significant differences in supervision activities across the groups. Experimental cases had significantly more officer interactions and had first contact within a significantly shorter period of time. Again, as with Protocols 1 and 2, it may be that the increased amount of programming, case work, officer contact, and the swifter time to case attention and application of sanctions provide insights to explain outcome differences.

## Georgia Parole Board Management's Project Critique

While the statistical results of the experiment were disappointing, the agency's goals included more than whether or not a statistically significant relationship could be demonstrated between parole outcomes and specific responses to parolee behavior. While the experiment was central, the project included several other components that provided field management with new and valuable information. The project tested processes that stretched the use of technology in parole supervision. The knowledge gleaned for practitioners was critical.

The project's historical analysis (Phase I) was more extensive than any conducted previously on this data. Valuable, new information was uncovered that provided insights into how supervision was being conducted and inconsistencies in supervision technique between parole offices. A new practice was implemented requiring referral to an assessment after the first positive drug test. While further analysis is called for, the project demonstrated possible links between the commission of high profile offenses and the chronic technical violator protocol used in the experiment. The initial analysis found a strong, positive relationship between attending programs and reduced new crime arrests,

particularly for the cognitive skills MRT programming which is delivered by parole staff. This finding added support to field management's commitment to delivering MRT in each parole office.

The time-based analysis in Phase I demonstrated that failure happens quickly. Parole officers must act on assessed need quickly, and be more vigilant in the early weeks and months of supervision to observe and monitor behavior, and take appropriate action quickly to keep parolees on the right track

As documented throughout this report, this project required a close collaboration between the Parole Board's Field Management team and researchers, a collaboration that had already been in place over many years. For this project, researchers and field management extended the mechanism for using an automated risk instrument, implemented in 2003, which included nightly analysis and officer e-mail notification. Field management was excited about the possibilities for fine tuning supervision and adopting more consistent responses to parolee behavior across the state that would further benefit its mission of successfully transitioning offenders back into the community.

According to field management, the e-mail notification was a resounding success. The process evaluation results demonstrated that parole officers and chiefs appreciated receiving the e-mails, they were useful for new officers to help them stay on track, and they served as helpful reminders for busy veteran officers. Furthermore, experimental site officers acknowledged that written documentation (e-mail) received more and faster attention than verbal reminders. These qualitative observations were verified in the data where parolee contact and responses to parolee behavior occurred more quickly in the experimental sites.

Field management is moving forward to make minor modifications and then re-implement e-mail notification similar to the system in place during the project. The agency has a deep commitment to improving parole outcomes, which have experienced a steady increase over the past five years in Georgia from 60% to 66%, based on the BJS counting method (Glaze and Bonczar, 2007). Using all the tools available to achieve better outcomes, including data and technology, are vital given the increasing cost of incarceration and budget constraints, exacerbated by the state's severe recession.

## Project Summary and Policy Implications

The first goal of this project was to determine if patterns of parolee behavior and parole officer responses were predictive of supervision outcomes. Phase 1 demonstrated the enormous potential of using an agency's automated case management data to identify predictors of outcomes. Predictors varied by outcome but a number of consistent patterns clearly emerged. Static factors, those characteristics of parolees that officers cannot change, were clearly predictive of outcomes. Consistent patterns also emerged for both parolee behaviors during supervision and parole officer responses. Substance abuse,

employment activities, violating conditions of supervision, and parole officer sanctioning all surfaced as significant predictors of outcomes.

Phase 2 witnessed the acceptance among parole management of the empirical evidence demonstrated with their own parolee population data. The management team worked collaboratively with the research team to tailor supervision protocols around the known predictors of success in their population, choosing to focus on those activities that best coincided with their current supervision philosophy – getting parolees to work, keeping them off drugs, and cognitive skills programming. In recognition of the role of static predictors, the research team set out to develop supervision protocols that were first offender-specific by focusing on parolees classified as "high risk" by the agency's existing parole supervision risk assessment. Next, supervision protocols were developed that were both behavior specific (focusing on specific types of violations) and time dependent (focusing on the short time periods demonstrated to be critical to parolee success). Agreement was reached on three new protocols to address substance abuse, job loss, and chronic violations. As described earlier in this report, the protocol recommendations were options available under the current supervision strategy. What the new protocols attempted to eliminate was the discretion of the officer to choose a response from a list of options. Officers in the experimental sites received a recommendation for a *specific* response or sanction, one empirically shown to increase the chance of supervision success.

Phase 3 involved working closely with the agency's Information Technology Department to develop, test, and deploy a tool to monitor the agency's automated case management data and identify the sequential patterns of parolee behavior covered by the three new protocols. The tool worked similarly to the existing automated risk assessment instrument in place since 2003. It was a computer program that accessed case management data tables housing the required data elements. During the nightly program execution, all new parole cases beginning on or after March 1, 2007, who met the protocol criteria, were flagged and specified fields were captured in an Oracle database. If the case was in one of the twelve experimental offices, the parole officer was sent an automatic e-mail listing the parolee's violations and the recommended response. The same e-mail message was sent as a reminder in seven days. The three new supervision protocols developed in Phase 2 were applied to 1,964 new parolees by December 31, 2007.

Finally, Phase 4 was an evaluation of the protocols applied to the 1,964 new parolees. The 12-month follow-up period ended December 31, 2008. The goal of the evaluation was to determine if the new protocols for managing parolee violations significantly improved supervision outcomes and to test the usefulness in supervision of the e-mail system for alerting parole officers to patterns of parolee violations. Twelve field offices were selected to participate in the experiment, offices which consistently accounted for half of the statewide population of new parolees. The remaining offices served as the control sites, where supervision decisions were made according to the current supervision matrix of violations and sanctions.

The results of the evaluation differed by outcome and by protocol. While not statistically significant, experimental parolees were less likely to be unemployed, fail a drug test, and be arrested for a technical violation during the follow-up period. Improving employment and reducing drug use and technical violations are critical to successful parole supervision, since those three outcomes were all significant predictors of later outcomes (arrests for new crimes and revocation) in Phase 1. There was also a statistically significant delay in the number of days until the first failed drug test, where experimental parolees lasted an additional month (34 days) before failure. This finding is also important, since the Phase 1 analysis demonstrated the significant influence of early drug test failures on later outcomes.

While the historical analysis associated these differences with increases in parole completions and fewer arrests for new crimes, in fact the experimental group was significantly more likely to have a misdemeanor arrest and be revoked back to prison. It is possible these findings will change with continued analysis over a longer follow-up period (by the end of the average two-year time under supervision, a greater portion of control cases may ultimately have more arrests and revocations). Finally, revocation was the only outcome that was not a measure of parolee behavior but an administrative response to such behavior. It may be that enhanced attention to the experimental cases resulted in an increase in revocation proceedings. Or it may simply be that the swifter response to violations resulted in earlier revocation for the experimental cases, something we will not know until the evaluation cohort has been tracked to the end of their supervision. Whether re-incarcerating more experimental parolees ultimately improved public safety remains unknown.

The protocol recommendations did not address the issue of officer response time expectations. Yet the findings demonstrate that parole officers responded more quickly to a violation when confronted with an e-mail recommendation. This makes logical sense, since some protocols tracked a variety of case characteristics that changed over a defined period of time, a mental task very difficult for parole officers to accomplish with a large caseload. Thus, the e-mail notification system may serve a critical function (as intended) to be a "second pair of eyes" constantly monitoring the caseload for patterns of parolee activity. This was confirmed by statements of parole officers participating in the focus groups. The e-mails were seen as a mechanism to increase the timing of attention to cases that required an immediate response. They were also described as "creating a paper trail for management" whereby they also "required a quick response in order to satisfy management."

The most consistent pattern to emerge in the evaluation data was the change in parole officer behavior. The supervision of experimental cases included significantly more case interactions, more face-to-face contacts, more program referrals, and more sanctions. In addition, experimental cases had a significantly shorter span of time between meeting protocol eligibility requirements and parole officer contact, programming, and sanctions. The experiment demonstrated that supervision and sanctioning patterns can be significantly changed by adopting a technological solution to aid officers in keeping track of emerging patterns in parolee behavior. The same sanctions, referrals, and

programming choices were available in the control sites – since they were part of the existing method of supervision. The unique feature of this project is that the computer made the selection from a list of response options for the officer, by matching a parolee behavior problem with the optimal response as defined by increasing the odds of a good outcome.

The quicker response time to experimental case violations did not mean the protocol recommendations were always followed. Despite assurances from parole chiefs of a high level of protocol adherence, officer compliance varied by protocol and was quite low with two of the three protocols, where they were followed in less than one in four cases. The mixed results in terms of impact on outcomes, coupled with the mixed results in protocol adherence, made it difficult to untangle the impact on outcomes of parolee behavior, officer supervision tactics, sanctioning, and programming. Therefore, a closer examination of the impact on outcomes of each specific protocol was conducted in order to untangle the story.

The substance abuse protocol (#1) experience demonstrates the difficulty in conducting experiments within the everyday functioning of an organization. During the experiment, the agency changed its supervision response to an offender's first failed drug test from officer discretion to a required substance abuse program referral. This resulted in the control sites adopting the recommended response in Protocol #1. The evaluation data found that referral to, and placement in, substance abuse treatment was the same across control and experimental cases. In addition, drug testing levels were the same despite the increased testing required by the protocol. The experimental sites did receive more and quicker parole officer case interactions. The only positive outcome was the one month delay until the first failed drug test. In addition, despite the apparently high level of programming (three-fourths of both experimental and control cases were enrolled), actual program *attendance* was very low – only 18-21 attendances over the course of a year. An insufficient level of the programming (the experimental treatment) may be the precursor to the high rate of failed drug tests in the follow-up period – three-fourths of both groups. However, since the control cases received generally the same treatment as the experimental cases, there was no longer a way to empirically answer the question of whether programming could significantly improve outcomes. This protocol does illustrate that increased case attention alone will not produce positive outcomes for substance abusers.

More parolees qualified for the job loss protocol (#2) than any other, but it was followed the least by officers (16% of the qualifying experimental cases). This protocol required both a sanction, which was typically applied, and programming, which was used much less often. This could be reflective of what parole officers and chiefs described in our interviews and focus groups as the "limited employment programming available" in their districts. Experimental parolees were less likely to be unemployed, fail a drug test, and be arrested for a technical violation (not significant) but significantly more likely to have a misdemeanor arrest and be revoked. There was a significant reduction in the amount of time it took to get a job (by two weeks on average) and a significant delay of one month until the first failed drug test. Unlike the first protocol, a sanction in conjunction with the

relatively low level of programming, especially evidenced by little or no employment program attendance, produced some positive results. This may simply reflect a lower programming need among the qualified parolees than among substance abusers. The experimental cases did receive more and earlier face-to-face officer contacts and were sanctioned significantly faster. This protocol demonstrates that swifter case work and sanctions, along with even limited programming, can significantly improve the time it takes parolees to find employment and reduce the time to drug test failures.

The final protocol (#3) addressed chronic violators, parolees who had previously received an administrative hearing sanction and continued to violate specific conditions of supervision. The only recommended action was placement in the cognitive skills MRT program. Despite the fact that this protocol was applied to half the volume of cases as the job loss protocol, it did produce some positive impact on outcomes. The experimental cases were significantly less likely to fail a drug test and there was a significant delay (one month) to first drug test failure. Such differences were found despite the relatively low level of compliance with the protocol recommendations. Only 23% of the experimental cases were placed in MRT, compared to 17% of the controls. Like the other protocols, officer activities significantly differed. The experimental cases had significantly more case interactions with their parole officers. This protocol may indicate that programming, in conjunction with increased case attention, can produce some improved outcomes among chronic parole violators.

## Key Insights and Recommendations

Three and a half years after the start of this project the research team offers the following key insights and recommendations to both the National Institute of Justice and agencies in the business of community supervision of offenders.

- There is promise in improving the chance of successful parole outcomes by developing supervision strategies that focus on empirically-determined parolee behavior and parole officer responses most predictive of positive outcomes.

- Automated case management and e-mail notification tools can be an effective method for focusing supervision activities on those sanctions and responses most likely to improve outcomes.

- An automated case management and e-mail notification tool is most useful if it provides real-time feedback to officers at the time parolee behavior occurs.

- Adherence to the requirements of evidence-based supervision can improve the chance of positive outcomes.

- Automated case management and e-mail notification tools can bring attention to more swiftly respond to problematic offender behavior with programming and sanctioning to maximize the positive impact on outcomes.

- Cases should be evaluated for a period of time that is sufficient to mimic typical supervision periods in order to improve outcome measurement.

- Continuing to refine analytical approaches to community supervision data will improve the ability to better understand the functional relationship between parole officer intervention and outcomes.

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