



Exploring the Impact of Supervision on Pretrial Outcomes

Christopher T. Lowenkamp, Ph.D.

Marie VanNostrand, Ph.D.

November, 2013

TABLE OF CONTENTS

Executive Summary	3
Introduction	5
Background	5
Research Objective and Questions.....	6
Dataset.....	6
Sample Description	7
Demographics.....	7
Common Risk Factors.....	7
Pretrial Status	9
Time at Risk in the Community.....	9
Pretrial Supervision.....	10
Pretrial Outcomes	10
Research Objective:	
Assess the impact of pretrial supervision on the likelihood of FTA and NCA while awaiting case disposition	11
Research Questions.....	11
Method and Analysis Results.....	11
Findings.....	11
Outcomes - No Statistical Control for Group Differences.....	12
Outcomes - Matched Cases Based on State, Gender, Race, and Risk Level.....	12
Outcomes - By Risk Level.....	13
Outcomes - By Risk Level While Controlling for State, Gender, Race, and Risk Level.....	13
Failure to Appear - Multivariate Models	14
New Criminal Activity - Multivariate Models	16
New Criminal Activity and Failure to Appear - Longer-Term Cases	16
Summary of Findings	17
Appendix	18
Appendix A - Scoring of risk factors on common risk assessment	18
Appendix B - Multivariate analyses by length of case processing.....	19
Appendix C - References.....	22

EXECUTIVE SUMMARY

Pretrial supervision is a relatively common condition of release and is encouraged by professional associations (e.g., American Bar Association, 2007; National Association for Pretrial Services Agencies, 2004), but very little is known about its effects overall and even less is known about what makes a particular pretrial supervision program more effective than another. Overall, the research on pretrial supervision is minimal and dated.

The current study seeks to investigate the effect of pretrial supervision on the likelihood of failure to appear (FTA) and new criminal activity (NCA) before case disposition. First, drawing on data from two states, this research isolates two groups of defendants: those released pending case disposition with supervision and those released without supervision. Second, this research compares the two groups across several descriptive factors regarding likelihood of FTA and NCA while in the community pending case disposition.

Using data on 3,925 defendants (2,437 released with pretrial supervision and 1,488 released without supervision), this research constructed a series of bivariate and multivariate models to test the impact of pretrial supervision. When the effects of time at risk in the community, demographic characteristics and defendant risk level (as measured by an established risk assessment) were accounted for, this research indicated:

1. Defendants who received supervision were significantly more likely to appear for an assigned court date. The most complex multivariate models that controlled for gender, race, time at risk in the community and defendant risk level all revealed that supervision significantly reduced the likelihood of FTA.
2. When using a five-level risk scale (level I being the lowest risk and level V being the highest), the differences between those who received pretrial supervision and those who did not was most pronounced for higher-risk defendants. Thirteen percent of level III defendants with no supervision failed to appear, compared with 8% for those who were supervised. For levels IV and V, 18% of unsupervised

REPORT HIGHLIGHTS:

- Pretrial supervision is a relatively common condition of release, but very little is known about its effects overall.
- Drawing on data from two states, this research examined the likelihood of new criminal arrest and failure to appear for defendants released pretrial with supervision and those released without supervision.
- The study found that moderate- and high-risk defendants who received pretrial supervision were more likely to appear in court, and all defendants who were supervised pretrial for 180 days or more were less likely to be arrested for new criminal activity.

defendants failed to appear, compared with 12% of supervised defendants. These differences equate to relative risk reductions of 38% and 33%, which means supervised level III defendants were 38% less likely to FTA and supervised level IV and V defendants were 33% less likely to FTA than their unsupervised counterparts.

The research also investigated the impact of supervision length on defendant outcomes. It was hypothesized that the effects of pretrial supervision on FTA would not vary with the length of the supervision period. It was also hypothesized that longer periods of supervision would be associated with lower levels of NCA, whereas shorter periods of supervision would have minimal or no effect on NCA. To test these hypotheses, multivariate models were created for defendants whose cases lasted 90 days or less, 91-180 days, and more than 180 days. The results indicated:

1. The effects of pretrial supervision on FTA are fairly consistent over the differing time-to-disposition periods (time at risk in the community).
2. When the time to disposition was more than 180 days, two of the three multivariate models identified statistically significant differences in the likelihood of NCA between those who received pretrial supervision and those who did not.
3. Defendants supervised pretrial for more than 180 days were 12% to 36% less likely to commit new crimes before case disposition. Some of these reductions were statistically significant while some merely approached statistical significance.

While these are observational findings, pretrial supervision of any length seems to make FTA less likely, and pretrial supervision of more than 180 days seems to make NCA less likely. This last finding is tentative because pretrial supervision, while statistically significant in relation to NCA in some models, only approaches statistical significance in other models. Ideally, future studies will control for various forms of pretrial supervision and conditions (e.g., home confinement, electronic monitoring, etc.) as well as demographics and defendant risk levels. In addition, future research should use an experimental design to definitively assess the impact of pretrial supervision on failure to appear and new criminal activity pending case disposition.

INTRODUCTION

Background

When a defendant is arrested, the pretrial stage of the criminal justice process begins. Before a defendant can be released, a judicial officer is tasked with assigning terms and conditions of release that will “reasonably assure” public safety and appearance at subsequent court hearings. Various terms and conditions are usually available to achieve this goal within a given jurisdiction.

The judicial officer establishing the terms and conditions is to assign those that are the least restrictive but still able to reasonably assure court appearance and public safety.¹ One condition that is often ordered is pretrial supervision.

The American Bar Association’s (2007:4) standards for Pretrial Release state that an agency should “...monitor, supervise, and assist defendants released prior to trial, and to review the status and release eligibility of detained defendants for the court on an ongoing basis.” The National Association of Pretrial Services Agencies (2004:4) has adopted a similar standard, indicating that “every jurisdiction should have the services of a pretrial services agency or program...” and that the agency or program should “...provide monitoring and supervisory services in cases involving released defendants...”

While pretrial supervision is a relatively common condition of release, very little is known about its effects overall and even less is known about what makes a particular pretrial supervision program more effective than another (VanNostrand, Rose & Weibrecht, 2011). Researchers (Goldkamp and White, 2006:146) attempting to develop an empirically supported pretrial supervision program noted that they “...found little help in the empirical or professional literature.” Similarly, Cadigan & Lowenkamp (2011) found that bringing evidence-based supervision into the pretrial context was difficult due to the limited research on efforts to prevent FTA and NCA by released defendants. With respect to the few research studies that *do* exist, the results tend to indicate minimal or null effects of pretrial supervision (VanNostrand, Rose & Weibrecht, 2011). But this limited research is dated and tends to focus on varying levels of supervision rather than comparing a group of defendants receiving supervision with a group that received no supervision.

1 While the term “reasonably assure” is found in the Bail Reform Act of 1984 which applies to Federal Court System, the ideas presented in the Act tend to represent how many local court systems currently operate. Similar language is used by the American Bar Association in their Standards for Pretrial Release and the Pretrial Release standards adopted by the National Association of Pretrial Services Agencies.

The current study seeks to investigate the effect of pretrial supervision on the likelihood of FTA and NCA. First, this research isolates two groups of defendants from two states: those released pending case disposition with supervision, and those released without supervision. Second, this research compares the two groups across several descriptive factors regarding two specific outcomes: likelihood of FTA and NCA while in the community pending case disposition.

Research Objective and Questions

The primary research objective for the study is to measure the effect of pretrial supervision on pretrial outcome. The analyses compare defendants released under supervision with defendants released without supervision on a number of characteristics and focus on two primary research questions:

- (1) What is the overall effect of pretrial supervision on failure to appear?
- (2) What is the overall effect of pretrial supervision on new criminal activity?

Dataset

The data included in this study were collected in 2005 in one state and 2008-2009 in the other, as part of larger independent projects that were focused on the development of pretrial risk assessment instruments. Data were collected on 1,847 defendants booked into 10 jails in a western state and on 4,272 defendants booked into 10 jails in an eastern state. These two datasets provided a total of 6,119 cases. Of these, 187 were excluded because they had no court hearings scheduled after release from jail. Another 2,007 cases were excluded because the defendants were held in jail until the disposition of their cases. The remaining 3,925 defendants were released from jail pending case disposition and were the focus of this study.

SAMPLE DESCRIPTION

Demographics

The demographic measures included in the study are age, gender, race, and ethnicity. As can be seen in Table 1, the average age of the 3,925 defendants is 32.8 years. Twenty-one percent of the sample is female, 38% of the sample is non-white, and 10% of the sample is Hispanic.

Table 1. Basic Demographics of Sample

	N	X
Age	3925	32.83
	N	X
Female	839	21.38
Non-white	1502	38.38
Hispanic	408	10.45

Common Risk Factors

One of the most important developments in pretrial release and detention over the last 30 years has been the advent of pretrial risk assessments. The development of these instruments in part represents the acknowledgment of differing expectations of success for different defendants. In an effort to control for risk, a risk score was calculated for each defendant in this study.

This risk score was based on the elements from an existing validated risk assessment that has been in use in multiple jurisdictions for a number of years (see VanNostrand, 2003; Lowenkamp & Bechtel, 2007; & VanNostrand and Rose, 2009). Table 2 presents the average risk score, the average number of days defendants were at risk in the community pending case disposition, the eight factors used to construct the risk assessment, and the five risk levels of the risk assessment.

The risk score was calculated using the eight factors: primary charge type (felony or misdemeanor), pending charges, criminal history, history of violent convictions, history of failure to appear, length of time at current residence (< or > 1 year), employed or serves as a primary caregiver, and history of drug abuse. Each factor was worth 1 point, with the exception of failure to appear; defendants with a history of two or more FTAs were assigned 2 points. The points were totaled to create a score from 0 to 9, and those totals were used to create the five risk levels. The risk levels represent the likelihood of pretrial failure, including FTA and NCA pending trial. The scoring of these risk factors is described in detail in Appendix A.

As can be seen in Table 2, 51% of the released defendants had a primary charge that was a felony. Twenty-five percent had a pending charge at the time of arrest, 70% had at least one prior misdemeanor or felony conviction (criminal history), 10% had two or more prior violent convictions, and 16% had two or more prior FTAs. 44% percent of the defendants had been living at their current residence for less than one year, 56% were unemployed and not considered a primary caregiver, and 48% had a history of drug abuse. Defendants with scores of 0 or 1 were considered risk level I; 2 were risk level II; 3 were risk level III; 4 were risk level IV; and 5 and above were risk level V.

Table 2. Descriptive Statistics of Sample Common Risk Factors

	N	X
Risk score	3925	3.35
Time at risk (days)	3860	138.63
	N	%
Primary charge type felony	2001	50.98
Pending charge(s)	985	25.10
Criminal history	2738	69.76
Violent convictions	375	9.55
FTA history	633	16.13
At residence < one year	1714	43.67
Unemployed/not primary caregiver	2205	56.18
History of drug abuse	1867	47.57
Risk level		
I	497	12.66
II	742	18.90
III	920	23.44
IV	848	21.61
V	918	23.39

Table 3 contains the same data elements as Tables 1 and 2 but separates the defendants into two main groups: those released with and without pretrial supervision. Table 3 reveals that the two groups of defendants are of similar age. While the groups differ in terms of gender and race, the differences are small. Practically speaking, the two groups of defendants are fairly similar on these characteristics. For example, of the defendants released without pretrial supervision, 20% were female; of the defendants released with pretrial supervision, 23% were female. Likewise, non-white defendants make up 40% of the defendants released without pretrial supervision and 36% of the defendants released with pretrial supervision. As similar as these numbers are, it is important to note that seemingly non-substantial differences can be statistically significant when working with large datasets, in this instance several thousand cases. As such, care should be taken when interpreting these results.

Table 3. Sample Demographics and Common Risk Factors by Supervision Status

	RELEASED NO PTS		RELEASED PTS		STATISTICAL TEST	
	N	X̄	N	X̄	TEST	P
Age	2437	32.88	1488	32.75	t(3923) = 0.3929	= .69
Risk score	2437	3.46	1488	3.17	t(3923) = 5.3677	< .01
Time at risk (days)	2390	144.72	1470	128.72	t(3939) = 3.6675	< .01
	N	%	N	%	TEST	P
Female	493	20.23	346	23.25	$\chi^2(1, 3925) = 5.0233$	= .03
Non-white	969	39.91	533	35.87	$\chi^2(1, 3914) = 6.3662$	= .01
Hispanic	228	9.42	180	12.12	$\chi^2(1, 3905) = 7.1688$	= .01
Primary charge type felony	1213	49.77	788	52.96	$\chi^2(1, 3925) = 3.7448$	= .05
Pending charge(s)	649	26.63	336	22.58	$\chi^2(1, 3925) = 8.0635$	< .01
Criminal history	1782	73.12	956	64.25	$\chi^2(1, 3925) = 34.4975$	< .01
Violent convictions	265	10.87	110	7.39	$\chi^2(1, 3925) = 12.9594$	< .01
FTA history	407	16.70	226	15.19	$\chi^2(1, 3925) = 1.5629$	= .21
At residence < one year	1095	44.93	619	41.60	$\chi^2(1, 3925) = 4.1718$	= .04
Unemployed/not caregiver	1397	57.32	808	54.30	$\chi^2(1, 3925) = 3.4307$	= .06
History of drug abuse	1212	49.73	655	44.02	$\chi^2(1, 3925) = 12.0965$	< .01
Risk level					$\chi^2(1, 3925) = 33.5028$	< .01
I	271	11.12	226	15.19		
II	436	17.89	306	20.56		
III	553	22.69	367	24.66		
IV	556	22.81	292	19.62		
V	621	25.48	297	19.96		

Pretrial Status

The sample includes all cases for defendants who were arrested and booked into the selected jails in the two states and then released. This time frame rendered a total of 3,925 records. Of this sample 2,437 (62%) were released without pretrial supervision while 1,488 (38%) were released with pretrial supervision.

Time at Risk in the Community

The time it takes to process a case from arrest to disposition can differ substantially from one case to the next. This means that some defendants have significantly more time during which they might fail to appear or be arrested for new criminal activity than others. In order to control for this time differential, a measure was created called “time at risk in the community” (commonly referred to as “time at risk”). This measure simply captured the number of days from the date of release from jail to the date of case disposition. The average number of days in the community for all the cases included in the sample was 139. The time at risk in the community does differ significantly and substantively between the group released with pretrial supervision (129 days) and the group released without pretrial supervision (145 days). As a result, further analyses will attempt to statistically control for this difference.

Pretrial Supervision

Pretrial supervision is a condition of release whereby a defendant is assigned to a supervising officer or case manager. The defendant must, by and large, follow the directives of the supervising officer, and it is the officer's job to ensure that the defendant meets the obligations of the court (most notably to appear for the assigned court date) and fulfills the conditions that may be assigned by the judge. Pretrial supervision usually involves face-to-face meetings, phone calls and other contacts between the supervising officer and the defendant.

Other conditions may be ordered by the court and can include (but may not be limited to) some combination of the following: no new arrests or violations; no driving; no alcohol or illegal drug consumption; no weapons possession; no contact with alleged victim or complaining witness; random drug testing; home incarceration/ electronic monitoring; curfew monitoring; maintaining employment; no contact with location of alleged offense; alcohol or other drug program or assessment. In the current study, supervision was defined independently by the jurisdictions that contributed data and additional conditions ordered by the court were unknown. Therefore, the exact components of supervision included in this study could vary considerably.

Pretrial Outcomes

For the current study, two pretrial outcomes will be examined. Specifically, whether defendants failed to appear for their assigned court dates or were arrested for new criminal activity while in the community pending case disposition.

RESEARCH OBJECTIVE:

- ▶ Assess the impact of pretrial supervision on the likelihood of FTA and NCA while awaiting case disposition

Research Questions

1. What is the overall effect of pretrial supervision on failure to appear?
2. What is the overall effect of pretrial supervision on new criminal activity?

Method and Analysis Results

In order to answer the research questions, bivariate and multivariate statistics were used. Because of the differences that exist between those released without pretrial supervision and those released with pretrial supervision, a number of multivariate models were constructed and estimated. To further control for defendant-level differences between the two groups, matched cases were analyzed. This matching process identified cases across the two groups that were identical in terms of state, gender, race, and risk level. Both the unmatched samples and the matched samples were analyzed, and those results are reported below. Rates are rounded to the nearest whole percentage point.

Findings

The research findings are provided below and organized in the following order.

1. Outcomes – No Statistical Control for Group Differences
2. Outcomes – Matched Cases Based on State, Gender, Race, and Risk Level
3. Outcomes – By Risk Level
4. Outcomes – By Risk Level While Controlling for State, Gender, Race, and Risk Level
5. Failure to Appear – Multivariate Models
6. New Criminal Activity – Multivariate Models
7. New Criminal Activity and Failure to Appear – Longer-Term Cases

Outcomes - No Statistical Control for Group Differences

The overall failure rates for the entire sample are as follows: 360 of the 3,925 defendants (9%) had a Failure to Appear (FTA), while 931 of the 3,925 defendants (or 24%) had an arrest for New Criminal Activity (NCA).

When comparing groups (see Table 4), significant differences were revealed between those who were released with supervision and those who were released without supervision. Unsupervised defendants had an FTA rate of 11%, while those released with supervision had an FTA rate of 7%. In other words, defendants released with supervision had better outcomes than those released without supervision. (The difference was statistically significant, meaning the observed differences were greater than the errors in the data.) While a 4% reduction in FTA rates might seem small, it means that supervised defendants were 36% less likely to FTA.

Similarly, defendants without pretrial supervision had an NCA rate of 25% while those with supervision had an NCA rate of 21%. This difference was also statistically significant, as was the relative risk reduction of 16%.

Table 4. Outcomes by Pretrial Supervision (PTS) Status

	RELEASED NO PTS		RELEASED PTS		STATISTICAL TEST	
	N	%	N	%	TEST	P
At Least 1 FTA	256	10.50	104	6.99	$\chi^2(1, 3925) = 13.7058$	< .01
At Least 1 NCA	613	25.15	318	21.37	$\chi^2(1, 3925) = 7.3072$	= .01

Outcomes - Matched Cases Based on State, Gender, Race, and Risk Level

In order to more fully and rigorously examine the aggregate rates of failure across each group, the same analyses that appeared in Table 4 were conducted with cases that were matched for state, gender, race, and risk level (see Table 5). After the matching procedure was complete, the difference in the rates of FTA between those who were released with supervision and those who were released without supervision became larger and remained statistically significant (12% and 7%, respectively). This indicates that those who were released with supervision had better outcomes, and this five-percentage-point reduction means that supervised defendants were 42% less likely to FTA.

However, after the matching procedure and comparative analysis were applied to NCA, the difference between those released with supervision and those released without supervision was no longer statistically significant. Those with supervision still fared better overall (NCA rate = 22%) than those without supervision (NCA rate = 23%), but the difference can be attributed to measurement error.

Table 5. Outcomes by Pretrial Supervision Status Cases Matched By State, Gender, Race, and Risk Level

	RELEASED NO PTS		RELEASED PTS		STATISTICAL TEST	
	N	%	N	%	TEST	P
At Least 1 FTA	172	11.91	103	7.13	$\chi^2(1, 2888) = 19.1348$	< .01
At Least 1 NCA	329	22.78	312	21.61	$\chi^2(1, 2888) = 0.5795$	= .45

Outcomes - By Risk Level

In order to more fully examine the effect of pretrial supervision, analyses were conducted that controlled for the overall defendant risk level, as determined by the risk assessment elements detailed previously. As noted above, five levels of risk were developed (levels I through V).

Two statistically significant differences between the groups were revealed when controlling for risk level (see Table 6). For defendants in level I (the lowest risk level), the rates of FTA for those who received pretrial supervision was 1% compared to 7% for those who did not receive supervision. The number of cases in risk level I, however, was fairly low, which leads to the possibility of unstable statistical estimates. When isolating defendants in the highest risk level (level V), the rates of FTA for those who received supervision was 10% compared to 16% for those who did not receive supervision. That means that supervised level V defendants were 38% less likely to FTA than their unsupervised counterparts.

With respect to new criminal activity, none of the comparisons in Table 6 between those who received pretrial supervision and those who did not revealed statistically significant differences in NCA rates, although the comparison of those defendants in level II approached statistical significance (11% NCA rate for those who received pretrial supervision; 16% for those who did not).

Table 6. Unmatched Failure Rates by Pretrial Supervision (PTS) and Risk Level

		RELEASED NO PTS		RELEASED PTS		STATISTICAL TEST	
		N	%	N	%	TEST	P
Level I	At Least 1 FTA	18	6.64	3	1.33	$\chi^2(1, 497) = 8.6011$	< .01
	At Least 1 NCA	31	11.44	26	11.50	$\chi^2(1, 497) = 0.005$	= .98
Level II	At Least 1 FTA	25	5.73	22	7.19	$\chi^2(1, 742) = 0.6421$	= .42
	At Least 1 NCA	71	16.28	35	11.44	$\chi^2(1, 742) = 3.4491$	= .06
Level III	At Least 1 FTA	44	7.96	23	6.27	$\chi^2(1, 920) = 0.9326$	= .33
	At Least 1 NCA	141	25.50	78	21.25	$\chi^2(1, 920) = 2.1905$	= .14
Level IV	At Least 1 FTA	70	12.59	27	9.25	$\chi^2(1, 848) = 2.1125$	= .15
	At Least 1 NCA	165	29.68	73	26.03	$\chi^2(1, 848) = 1.2530$	= .26
Level V	At Least 1 FTA	99	15.94	29	9.76	$\chi^2(1, 918) = 6.3901$	= .01
	At Least 1 NCA	205	33.01	103	34.68	$\chi^2(1, 918) = 0.2510$	= .62

Outcomes - By Risk Level While Controlling for State, Gender, Race, and Risk Level

Table 7 presents an increasingly rigorous analysis of group comparisons, similar to what appears in Table 6. This time, however, the analysis controls for risk level while focusing on cases matched for state, gender, race, and risk level. The results for level I, level IV, and level V defendants are similar to those that appeared in Table 6, with statistically significant differences in the rate of FTA between those released with and without supervision.

Table 7. State Matched Failure Rates by Pretrial Supervision (PTS) and Risk Level

		RELEASED NO PTS		RELEASED PTS		STATISTICAL TEST	
		N	%	N	%	TEST	P
Level I	At Least 1 FTA	15	7.08	3	1.42	$\chi^2(1, 424) = 8.3547$	< .01
	At Least 1 NCA	19	8.96	26	12.26	$\chi^2(1, 424) = 1.2182$	= .27
Level II	At Least 1 FTA	21	6.89	22	7.21	$\chi^2(1, 610) = 0.0250$	= .87
	At Least 1 NCA	49	16.07	35	11.48	$\chi^2(1, 610) = 2.7060$	= .10
Level III	At Least 1 FTA	34	9.74	22	6.30	$\chi^2(1, 698) = 2.7957$	= .10
	At Least 1 NCA	87	24.93	74	21.20	$\chi^2(1, 698) = 1.3644$	= .24
Level IV	At Least 1 FTA	43	15.09	27	9.47	$\chi^2(1, 570) = 4.1691$	= .04
	At Least 1 NCA	77	27.02	75	26.32	$\chi^2(1, 570) = 0.0359$	= .85
Level V	At Least 1 FTA	59	20.14	29	9.90	$\chi^2(1, 586) = 12.0345$	< .01
	At Least 1 NCA	97	33.11	102	34.81	$\chi^2(1, 586) = 0.1902$	= .66

Specifically, defendants in risk level I who received pretrial supervision had an FTA rate of 1%, while those who did not receive supervision had an FTA rate of 7%. Defendants in risk level IV who received supervision had an FTA rate of 9%, compared with 15% for those without supervision. The FTA rate for unsupervised defendants in risk level V was double (20%) the rate for supervised defendants (10%). Again, these analyses were conducted while controlling for risk level as well as state of origin, gender, race, and time at risk in the community.

None of the differences between the two groups (supervised and unsupervised) were statistically significant when comparing rates of NCA.

Failure to Appear - Multivariate Models

Table 8 presents three multivariate models, one using the unmatched sample, one using the sample matched by state, and one using the sample matched by jail. Each model statistically controlled for state of origin, gender, race, age, time at risk in the community, risk level, and pretrial supervision. Of particular interest is the relationship between pretrial supervision and FTA.

In short, statistically significant relationships between pretrial supervision and likelihood of FTA were revealed in each of the models. Further, these relationships were revealed while controlling for factors that could potentially influence outcome, offering what is likely the true relationship between supervision and likelihood of FTA.

In all three models, defendants who received pretrial supervision were coded as a “1.” In addition, the coefficient was negative in each of the three models, indicating that defendants who received supervision were significantly more likely to appear in court than if they had not received supervision. In other words, these three models showed supervision to have a significant suppressing effect on the likelihood of FTA.

Table 8. Multivariate Models Predicting FTA

	UNMATCHED ¹		MATCHED BY STATE ²		MATCHED BY JAIL ³	
	ODDS RATIO	P> Z	ODDS RATIO	P> Z	ODDS RATIO	P> Z
State	4.10	0.00	4.56	0.00	3.15	0.00
Female	0.99	0.97	0.88	0.47	0.85	0.45
Non white	1.17	0.26	1.32	0.10	0.96	0.85
Age	1.00	0.63	1.00	0.55	0.99	0.25
Time at risk	1.00	0.00	1.00	0.00	1.00	0.00
Risk level (Reference = I)						
II	1.86	0.04	2.24	0.02	2.43	0.02
III	2.61	0.00	2.93	0.00	2.89	0.00
IV	4.00	0.00	4.23	0.00	3.75	0.00
V	4.19	0.00	4.24	0.00	3.52	0.00
Pretrial supervision	0.60	0.00	0.62	0.00	0.71	0.04
Constant	0.01	0.00	0.01	0.00	0.02	0.00

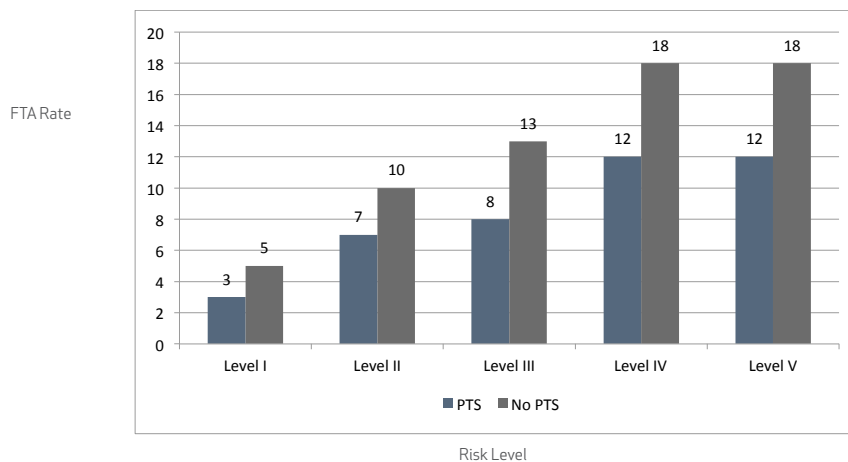
¹ Model X2 (10, 3849) = 282.69; p < .01; Pseudo-R2 = .1235

² Model X2 (10, 2838) = 244.03; p < .01; Pseudo-R2 = .1415

³ Model X2 (10, 2384) = 128.35; p < .01; Pseudo-R2 = .0998

These multivariate results were further explored by calculating the predicted probabilities of FTA, which gives a practical idea of what the actual impact of pretrial supervision may be. Figure 1 presents the predicted probabilities of FTA for each risk level. In each instance, the predicted probability of FTA was significantly higher for those defendants who did not receive pretrial supervision. Further, the effect of pretrial supervision appears to matter even more as risk level increases. The differences between those who received pretrial supervision and those who did not was most pronounced for those defendants in risk level III (no supervision = 13% FTA, supervision = 8% FTA) and risk levels IV and V (no supervision = 18% FTA, supervision = 12% FTA). These differences mean that supervised level III defendants were 38% less likely to FTA and supervised level IV and V defendants were 33% less likely to FTA, figures that are on par with those generated using the bivariate data.

Figure 1. Predicted Probability of Failure to Appear by Risk Level and Pretrial Supervision (PTS) Status Based on State Matched Logistic Regression Model



New Criminal Activity - Multivariate Models

Table 9 presents three multivariate models, one using the unmatched sample, one using the sample matched by state, and one using the sample matched by jail. Each model statistically controlled for state of origin, gender, race, age, time at risk in the community, risk level, and pretrial supervision. Of particular interest is the relationship between pretrial supervision and NCA.

Pretrial supervision was not a statistically significant predictor of NCA in any of the models, all of which controlled for each of the other factors – state, gender, race, age, time at risk in the community, and risk level. These results were not surprising in light of the previous results generated from bivariate models.

Table 9. Multivariate Models Predicting NCA

	UNMATCHED ¹		MATCHED BY STATE ²		MATCHED BY JAIL ³	
	ODDS RATIO	P> Z	ODDS RATIO	P> Z	ODDS RATIO	P> Z
State	0.87	0.17	0.92	0.46	0.88	0.31
Female	0.78	0.02	0.81	0.08	0.79	0.08
Non white	1.04	0.66	1.03	0.77	0.98	0.86
Age	0.99	0.03	0.99	0.03	0.99	0.01
Time at risk	1.01	0.00	1.01	0.00	1.00	0.00
Risk level (Reference = I)						
II	1.16	0.43	1.27	0.25	1.27	0.30
III	2.15	0.00	2.32	0.00	2.42	0.00
IV	2.72	0.00	2.76	0.00	3.18	0.00
V	3.36	0.00	3.90	0.00	3.70	0.00
Pretrial supervision	0.96	0.63	1.04	0.69	1.01	0.91
Constant	0.09	0.00	0.08	0.00	0.10	0.00

¹ Model $X^2(10, 3849) = 468.71$; $p < .01$; Pseudo- $R^2 = .1110$

² Model $X^2(10, 2838) = 344.83$; $p < .01$; Pseudo- $R^2 = .1145$

³ Model $X^2(10, 2384) = 273.70$; $p < .01$; Pseudo- $R^2 = .1066$

New Criminal Activity and Failure to Appear – Longer-Term Cases

This research also investigated the impact of the length of supervision. It was hypothesized that the effects of pretrial supervision on FTA would not vary with time to disposition. It was hypothesized that longer periods of supervision would impact NCA, whereas shorter periods of supervision would not. To test these hypotheses, a series of multivariate models were estimated for defendants whose cases lasted 90 days or less, 91-180 days, and more than 180 days.

The effects of pretrial supervision on FTA are fairly consistent over the differing time-to-disposition periods. Table 10 presents the results of analyses that examined the relationship between pretrial supervision that lasted more than 180 days and NCA. Analyses were conducted using the entire sample, as well as the sample matched by state and the sample matched by jail. In Appendix B, several additional multivariate models further explore the relationship between length of pretrial supervision and FTA and NCA.

Table 10. NCA by Pretrial Supervision (PTS) Status for Cases Lasting Longer than 180 days

	RELEASED NO PTS		RELEASED PTS		STATISTICAL TEST	
	N	%	N	%	TEST	P
Unmatched	328	46.52	133	38.22	$\chi^2(1, 1053) = 6.5314$	= .01
State matched	146	43.45	129	38.39	$\chi^2(1, 672) = 1.7789$	= .18
Jail matched	137	50.55	108	39.85	$\chi^2(1, 542) = 6.2643$	= .01

For the unmatched sample and the jail-matched sample, statistically significant differences in NCA rates were revealed for those who received pretrial supervision of more than 180 days: those who received pretrial supervision of more than 180 days had a 38% rate of NCA; that number jumped to 47% for unsupervised defendants. This is a relative risk reduction of 19%. Likewise, for the sample matched by jail, defendants who received pretrial supervision more than 180 days had a 40% NCA rate; the figure for unsupervised defendants was 51%. Again, this is a relative risk reduction of 19%.

These results indicate that pretrial supervision may decrease the likelihood of NCA for defendants who are supervised for a certain period of time. While important to note, this finding may have limited practical application because the length of case disposition and length of supervision are usually beyond the control of judges and other judicial officers.

SUMMARY OF FINDINGS

When controlling for the effects of state of origin, demographic characteristics, time at risk in the community, and defendant risk level (as measured by an established risk assessment), this research indicated that supervised defendants were significantly more likely to appear for court.

The differences were most pronounced for defendants in risk level III (no supervision = 13% FTA, supervision = 8% FTA) and risk levels IV and V (no supervision = 18% FTA, supervision = 12% FTA). These differences equate to relative risk reductions of 38% and 33%.

Pretrial supervision of more than 180 days may also decrease the likelihood of NCA. This finding is tentative because pretrial supervision is statistically significant in some models and merely approaches statistical significance in other models.

APPENDIX

Appendix A – Scoring of risk factors on common risk assessment

- 1. Primary Charge Type**
Defendants charged with a felony are more likely to fail pending trial than defendants charged with a misdemeanor.
- 2. Pending Charge(s)**
Defendants who have pending charge(s) at the time of their arrest are more likely to fail pending trial.
- 3. Criminal History**
Defendants with at least one prior misdemeanor or felony conviction are more likely to fail pending trial.
- 4. Two or More Violent Convictions**
Defendants with two or more violent convictions are more likely to fail pending trial.
- 5. Two or More Failures to Appear**
Defendants with two or more failures to appear are more likely to fail pending trial.
- 6. Length at Current Residence**
Defendants who have been living at their current residence for less than one year are more likely to fail pending trial.
- 7. Employed/Primary Caregiver**
Defendants who have not been employed continuously at one or more jobs during the two years prior to their arrest or who are not primary caregivers at the time of their arrest are more likely to fail pending trial.
- 8. History of Drug Abuse**
Defendants with a history of drug abuse are more likely to fail pending trial.

All factors were worth 1 point except Two or More Failures to Appear, which was worth 2 points. The points were totaled to create a score from 0 to 9; this score was then used to assign defendant risk level for FTA and NCA.

Appendix B – Multivariate analyses by length of case processing

Table Appendix B.1. Logistic Regression Predicting FTA Unmatched Sample by Time between Release and Disposition

	1-90 DAYS			91-180 DAYS ²			181+ DAYS ³		
	COEF.	ODDS RATIO	P> Z	COEF.	ODDS RATIO	P> Z	COEF.	ODDS RATIO	P> Z
State	1.01	2.75	0.00	1.14	3.14	0.00	1.76	5.82	0.00
Female	-0.36	0.70	0.27	-0.09	0.91	0.73	0.24	1.27	0.31
Non white	0.27	1.31	0.30	0.19	1.21	0.44	0.05	1.05	0.81
Age	0.01	1.01	0.24	0.00	1.00	0.85	-0.02	0.98	0.09
Time at risk	0.01	1.01	0.01	0.00	1.00	0.25	0.00	1.00	0.00
Risk level (Reference = I)									
II	0.65	1.92	0.23	1.19	3.30	0.06	0.00	1.00	1.00
III	0.97	2.65	0.06	1.01	2.74	0.12	0.86	2.37	0.05
IV	1.09	2.97	0.04	1.54	4.65	0.01	1.33	3.79	0.00
V	1.46	4.29	0.00	1.54	4.68	0.01	1.22	3.39	0.00
Pretrial supervision	-0.45	0.64	0.09	-0.49	0.61	0.03	-0.53	0.59	0.01
Constant	-5.46	0.00	0.00	-4.34	0.01	0.00	-3.54	0.03	0.00

¹ Model X² (10, 1829) = 36.93; p < .01; Pseudo-R² = .06

² Model X² (10, 976) = 44.00; p < .01; Pseudo-R² = .07

³ Model X² (10, 1044) = 132.10; p < .01; Pseudo-R² = .15

Table Appendix B.2. Logistic Regression Predicting FTA State Matched Sample by Time between Release and Disposition

	1-90 DAYS ¹			91-180 DAYS ²			181+ DAYS ³		
	COEF.	ODDS RATIO	P> Z	COEF.	ODDS RATIO	P> Z	COEF.	ODDS RATIO	P> Z
State	1.14	3.12	0.00	0.92	2.52	0.00	1.72	5.57	0.00
Female	-0.11	0.89	0.76	-0.14	0.87	0.65	-0.13	0.88	0.71
Non white	0.35	1.42	0.28	0.20	1.22	0.53	0.16	1.18	0.61
Age	0.02	1.02	0.15	-0.01	0.99	0.25	-0.02	0.98	0.03
Time at risk	0.02	1.02	0.01	0.00	1.00	0.81	0.00	1.00	0.00
Risk level (Reference = I)									
II	0.47	1.60	0.41	1.38	3.97	0.07	0.35	1.42	0.55
III	0.75	2.13	0.17	1.18	3.24	0.13	0.98	2.65	0.07
IV	0.82	2.27	0.14	1.66	5.25	0.03	1.29	3.63	0.02
V	1.16	3.19	0.03	1.85	6.33	0.01	1.25	3.50	0.02
Pretrial supervision	-0.43	0.65	0.14	-0.57	0.57	0.03	-0.50	0.60	0.03
Constant	-5.59	0.00	0.00	-3.51	0.03	0.00	-3.30	0.04	0.00

¹ Model X² (10, 1364) = 29.37; p < .01; Pseudo-R² = .07

² Model X² (10, 686) = 33.90; p < .01; Pseudo-R² = .07

³ Model X² (10, 668) = 85.07; p < .01; Pseudo-R² = .1

Table Appendix B.3. Logistic Regression Predicting FTA for Jail-Matched Sample by Time between Release and Disposition

	1-90 DAYS ¹			91-180 DAYS ²			181+ DAYS ³		
	COEF.	ODDS RATIO	P> Z	COEF.	ODDS RATIO	P> Z	COEF.	ODDS RATIO	P> Z
State	1.01	2.76	0.04	1.24	3.44	0.00	2.28	9.74	0.00
Female	-0.90	0.41	0.23	-0.18	0.84	0.68	-0.44	0.64	0.37
Non white	0.40	1.49	0.36	0.25	1.28	0.53	0.49	1.63	0.20
Age	0.01	1.01	0.65	-0.01	0.99	0.71	-0.02	0.98	0.14
Time at risk	0.02	1.02	0.03	0.00	1.00	1.00	0.00	1.00	0.00
Risk level (Reference = I)									
II	0.61	1.84	0.62	1.22	3.39	0.26	0.33	1.39	0.68
III	1.45	4.25	0.19	1.51	4.51	0.16	1.04	2.82	0.14
IV	2.05	7.76	0.06	1.48	4.40	0.17	1.51	4.52	0.03
V	2.41	11.16	0.02	1.41	4.08	0.19	1.41	4.10	0.04
Pretrial supervision	-0.55	0.58	0.19	-0.61	0.54	0.07	-0.60	0.55	0.04
Constant	-6.54	0.00	0.00	-3.70	0.02	0.01	-3.88	0.02	0.00

¹ Model $X^2(10, 956) = 28.28$; $p < .01$; Pseudo- $R^2 = .12$

² Model $X^2(10, 434) = 19.39$; $p < .01$; Pseudo- $R^2 = .07$

³ Model $X^2(10, 466) = 90.93$; $p < .01$; Pseudo- $R^2 = .22$

Table Appendix B.4. Logistic Regression Predicting NCA Unmatched Sample by Time between Release and Disposition

	1-90 DAYS ¹			91-180 DAYS ²			181+ DAYS ³		
	COEF.	ODDS RATIO	P> Z	COEF.	ODDS RATIO	P> Z	COEF.	ODDS RATIO	P> Z
State	-0.38	0.69	0.07	-0.20	0.82	0.25	-0.11	0.90	0.49
Female	-0.29	0.75	0.14	-0.35	0.71	0.06	-0.31	0.73	0.07
Non white	0.03	1.03	0.87	0.01	1.01	0.97	0.08	1.08	0.58
Age	0.00	1.00	0.49	-0.02	0.98	0.00	-0.01	0.99	0.18
Time at risk	0.03	1.03	0.00	0.01	1.01	0.01	0.00	1.00	0.00
Risk level (Reference = I)									
II	-0.18	0.84	0.57	0.49	1.64	0.19	0.13	1.14	0.66
III	0.32	1.38	0.24	0.92	2.52	0.01	0.93	2.53	0.00
IV	0.92	2.50	0.00	0.98	2.67	0.01	1.01	2.74	0.00
V	0.87	2.39	0.00	1.23	3.42	0.00	1.41	4.08	0.00
Pretrial supervision	0.25	1.28	0.12	-0.12	0.89	0.46	-0.27	0.77	0.06
Constant	-4.01	0.02	0.00	-1.88	0.15	0.00	-1.24	0.29	0.00

¹ Model $X^2(10, 1829) = 96.27$; $p < .01$; Pseudo- $R^2 = .08$

² Model $X^2(10, 976) = 46.16$; $p < .01$; Pseudo- $R^2 = .04$

³ Model $X^2(10, 1044) = 78.74$; $p < .01$; Pseudo- $R^2 = .06$

Table Appendix B.5. Logistic Regression Predicting NCA State Matched Sample by Time between Release and Disposition

	1-90 DAYS ¹			91-180 DAYS ²			181+ DAYS ³		
	COEF.	ODDS RATIO	P> Z	COEF.	ODDS RATIO	P> Z	COEF.	ODDS RATIO	P> Z
State	-0.69	0.50	0.01	-0.34	0.71	0.10	-0.01	0.99	0.98
Female	-0.35	0.71	0.16	-0.30	0.74	0.18	-0.25	0.78	0.28
Non white	-0.13	0.88	0.52	-0.19	0.83	0.37	-0.05	0.95	0.80
Age	0.01	1.01	0.09	-0.03	0.97	0.00	-0.01	0.99	0.05
Time at risk	0.03	1.03	0.00	0.01	1.01	0.10	0.00	1.00	0.00
Risk level (Reference = I)									
II	-0.16	0.86	0.64	0.57	1.76	0.17	-0.01	0.99	0.97
III	0.12	1.13	0.70	0.82	2.28	0.04	0.82	2.26	0.01
IV	0.81	2.25	0.01	0.84	2.33	0.04	1.13	3.10	0.00
V	0.75	2.12	0.02	1.13	3.10	0.01	1.60	4.97	0.00
Pretrial supervision	0.31	1.37	0.09	-0.06	0.94	0.73	-0.28	0.75	0.09
Constant	-4.10	0.02	0.00	-1.41	0.24	0.03	-1.15	0.32	0.01

¹ Model $X^2(10, 1364) = 69.95$; $p < .01$; Pseudo- $R^2 = .08$

² Model $X^2(10, 686) = 31.24$; $p < .01$; Pseudo- $R^2 = .04$

³ Model $X^2(10, 668) = 70.69$; $p < .01$; Pseudo- $R^2 = .08$

Table Appendix B.6. Logistic Regression Predicting NCA for Jail-Matched Sample by Time between Release and Disposition

	1-90 DAYS ¹			91-180 DAYS ²			181+ DAYS ³		
	COEF.	ODDS RATIO	P> Z	COEF.	ODDS RATIO	P> Z	COEF.	ODDS RATIO	P> Z
State	-0.42	0.66	0.19	-0.59	0.55	0.03	0.20	1.22	0.43
Female	-0.33	0.72	0.27	-0.17	0.84	0.57	-0.02	0.98	0.96
Non white	-0.04	0.96	0.87	-0.24	0.78	0.35	0.04	1.04	0.87
Age	0.01	1.01	0.50	-0.02	0.98	0.07	0.00	1.00	0.67
Time at risk	0.03	1.03	0.00	0.01	1.01	0.00	0.00	1.00	0.00
Risk level (Reference = I)									
II	-0.32	0.73	0.44	-0.10	0.91	0.85	0.46	1.59	0.35
III	0.42	1.53	0.23	0.06	1.06	0.90	1.21	3.36	0.01
IV	0.78	2.18	0.03	0.14	1.15	0.78	1.38	3.99	0.00
V	0.87	2.39	0.02	0.35	1.42	0.47	1.72	5.57	0.00
Pretrial supervision	0.41	1.51	0.05	-0.06	0.94	0.79	-0.44	0.64	0.02
Constant	-4.16	0.02	0.00	-2.10	0.12	0.01	-1.78	0.17	0.00

¹ Model $X^2(10, 956) = 52.94$; $p < .01$; Pseudo- $R^2 = .08$

² Model $X^2(10, 434) = 18.69$; $p < .01$; Pseudo- $R^2 = .04$

³ Model $X^2(10, 466) = 42.64$; $p < .01$; Pseudo- $R^2 = .06$

APPENDIX C – References

- American Bar Association. (2007). American Bar Association Standards for Criminal Justice: Pretrial Release, Third Edition.
- Bechtel, K., Lowenkamp, C.T. & Holsinger, A.M. (2011). Identifying the predictors of pretrial failure: A meta-analysis. *Federal Probation* 75(2): 78-87.
- Cadigan, T., & Lowenkamp, C.T. (2011). Implementing risk assessment in the Federal Pretrial Services System. *Federal Probation* 75(2): 30-34.
- Cook D.E. (2012). ccmatch. User written Stata ado file. Iowa City, IA: University of Iowa.
- Goldkamp, J., & White, M. (2006). Restoring Accountability in Pretrial Release: The Philadelphia Pretrial Release Supervision Experiments. *Journal of Experimental Criminology* 2, 143-181.
- Lowenkamp, C.T. & Bechtel, K.B. (2007). Validation of the Summit County Pretrial Risk Assessment. Cincinnati, OH: Unpublished Manuscript.
- Lowenkamp, C.T. & Whetzel, J. (2009). The development of an actuarial risk assessment instrument for US Pretrial Services. *Federal Probation*, 73: 50-55.
- National Association of Pretrial Services Agencies (October, 2004). Standards On Pretrial Release.
- VanNostrand, M. (2003). Assessing Risk Among Pretrial Defendants in Virginia: The Virginia Pretrial Risk Assessment Instrument. Richmond, VA: Virginia Department of Criminal Justice Services.
- VanNostrand, M. & Keebler, G. (2009). Pretrial risk assessment in the federal court. *Federal Probation*, 73 (2), 2-29.
- VanNostrand, M. & Rose, K. (2009). Pretrial Risk Assessment in Virginia. Richmond, VA: Virginia Department of Criminal Justice Services.
- VanNostrand, M., Rose, K. & Weibrecht, K. (2011). In Pursuit of Legal and Evidence-Based Pretrial Release Recommendations and Supervision. Richmond, VA: Virginia Department of Criminal Justice Services.