

# UNDER SURVEILLANCE: AN EMPIRICAL TEST OF THE EFFECTIVENESS AND CONSEQUENCES OF ELECTRONIC MONITORING

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## **Research Summary:**

*This study addresses the effectiveness of electronic monitoring (EM) for serious offenders supervised in the community. Using data on 75,661 offenders placed on home confinement in Florida from 1998 to 2002, we find that both radio-frequency and global positioning system monitoring significantly reduce the likelihood of technical violations, reoffending, and absconding for this population of offenders. Additionally, we find that offenders placed on home confinement with EM are significantly more serious than those placed on home confinement without EM, which casts doubt on the anticipated net-widening effect of this particular intermediate sanction.*

## **Policy Implications:**

*Given the anticipated increase in the use of EM in the immediate future, policy makers will surely be faced with questions about its effectiveness in preventing or deterring further criminal activity among offenders in the community, as well as concerns about the intensity of surveillance it affords and a subsequent increase in the likelihood of a prison sentence or return to prison for technical violations. The results presented here suggest that such concerns may be overblown and that EM of offenders in the community may prove an effective public safety alternative to prison. Additional implications of this research include decision making regarding which offenders should be placed on EM, which type of monitoring device will be the most cost-effective and efficient, and the potential for front-end net-widening if states adopt the practice of "Got 'em?' Use 'em.'"*

**KEYWORDS:** Intermediate Sanctions, Home Confinement, Electronic Monitoring, Radio-Frequency Monitoring, Global Positioning System Monitoring

During the 1980s, the United States began to experience “exponential growth in incarceration” (Blumstein, 1998). Austin et al. (2003) report that between 1980 and 2000, the prison population more than tripled. In response to this unprecedented growth in imprisonment and its associated costs, various intermediate sanctions were promoted as less costly but still “tough” and effective alternatives to imprisonment (Clear and Braga, 1995; Morris and Tonry, 1990). Despite reservations by penal reform scholars and researchers, intermediate sanctions, including intensive supervision, home confinement with and without electronic monitoring (EM), day reporting centers, and boot camps, proved appealing to both liberal and conservative policy makers and quickly spread across the country.

In theory, intermediate sanction programs were to divert offenders from prison, while providing a greater level of offender accountability and surveillance than would be provided by traditional probation supervision. The end result, therefore, would be less penal control imposed on individual offenders and less expense to the taxpayer, without any compromise to public safety (Baumer et al., 1993; Clear et al., 1998). To date, however, the extent to which intermediate sanctions have fulfilled their formal goals of reducing prison populations and protecting public safety has yet to be established. Despite the absence of empirical proof regarding the effectiveness of electronic surveillance, this strategy is likely to become a national approach for managing high-risk offenders in the community.

The widely publicized sexual battery and murder of nine-year-old Jessica Lunsford in early 2005, *allegedly* by a registered sex offender, prompted legislation in Florida that requires sex offenders who molest children to wear satellite tracking devices (global positioning system, or GPS, monitoring) for the rest of their lives once they leave prison. Despite an estimated fiscal impact on the state of \$3.9 million, the legislation passed by unanimous vote, effectively ensuring that the number of offenders in Florida under electronic surveillance will more than double (from 720 to 1,920) within fiscal year 2005–2006. Whether prompted by the case of Jessica Lunsford and Florida’s Jessica Lunsford Act or by the growing awareness of the capabilities and availability of GPS monitoring devices, legislation related to the EM of offenders in the community was proposed in at least 11 additional states and at the Federal level in the Spring 2005 legislative season, all of which provide for its increased use. Even if media attention to sex offenders in the community and the presumed public outcry for closer surveillance of these offenders subside, it seems likely that the use of EM devices will increase dramatically in the very near future. Alongside this anticipated increase, policy makers will surely face questions about their effectiveness in preventing or deterring further criminal activity, as well as concerns about the intensity of surveillance they afford

and a subsequent increase in prison sentences or returns to prison for technical violations.

This study addresses the effectiveness of EM for serious offenders supervised in the community. Using data on 75,661 offenders placed on home confinement in Florida from 1998 to 2002, we estimate the effect of radio-frequency (RF) and GPS monitoring on the likelihood of revocation and absconding from supervision. During this time period in Florida, only a small percentage of offenders placed on home confinement was ordered to wear an EM device as a condition of the home confinement sentence, which allows for a comparison between those and other, like offenders who were not electronically monitored in terms of their likelihood of technically violating, reoffending, or absconding while on home confinement. In doing so, we can test for a potential net-widening effect of EM as well as its potential for protecting public safety. We also test for potential net-widening at the “front end,” or the point at which the decision is made to place an offender on EM as a condition of his or her home confinement sentence, with additional data on offender seriousness levels.

## PRIOR RESEARCH

Scholarly interest in the intentions and consequences of penal reform emerged in the 1970s with studies focused on the penal control consequences of the juvenile diversion programs that proliferated throughout the United States during the late 1960s and 1970s. Evidence of a net-widening effect of these diversion programs was documented in the late 1970s and early 1980s (Austin and Krisberg, 1981; Blomberg, 1977; Klein, 1979; Lemert, 1981), followed by further evidence of net-widening associated with the “get tough” crime control strategies of the 1980s (Blomberg and Waldo, 1987; Hylton, 1982). By the late 1980s, concern was being expressed for the increasing use of intermediate punishment programs, especially as they were exacerbated by violations of strict sentence conditions that resulted in an eventual prison term anyway.

By the 1990s, evidence of disproportionate increases in prison populations, despite the use of intermediate sanctions (Blomberg et al., 1993; Frazier and Lee, 1992; Mainprize, 1992; Petersilia and Turner, 1990), and of a “piling up of sanctions” related to intermediate punishment programs (Blomberg and Lucken, 1994; Bonta et al., 2000; Clear et al., 1998; Lucken, 1997; Ulmer, 2001), had been well-documented. Even more recently, net-widening has been associated with “new penology” kinds of techniques, such as EM (Bonta et al., 2000; Mainprize, 1992), differentiated case management (Taxman and Elis, 1999), and detention alternatives for juvenile offenders (Frazier and Lee, 1992; Walters, 1996).

This evolution of the “net-widening” concept has resulted in an extension of its scope of reference as well. Although its original reference was specific to the consequence of “increasing the scope of corrections” (Clear and Cole, 2003), Renzema (2003:4) notes that “In practice, ‘net-widening’ refers to both more harsh dispositions . . . and to the expansion of the total offender processing capacity of a jurisdiction.” This recognition of the dual nature of the net-widening phenomenon resonates with Tonry and Lynch’s (1996:106) distinction between the “front-end” and “back-end” net-widening consequences of intermediate sanctions. They define “front-end” net-widening as the use of enhanced penalties for offenders who would not otherwise have received a prison sentence and “back-end” net-widening as the increased likelihood of an eventual prison sentence for atechanical violations among offenders subject to more intense surveillance.

With only a handful of empirical studies published, to date, and only two that specifically test for an effect of EM on technical violations, no firm conclusions can be drawn about its potential for “back-end” net-widening. Moreover, in the two studies that *do* examine EM and technical violations, the findings are contradictory. For example, Coopridner and Kerby (1990) find significantly higher rates of technical violation for pre-trial release offenders on EM than for those released into the community with no monitoring, whereas SPEC Associates (2002) find a significant *negative* effect of EM on the likelihood of a parole violation. Two additional studies (Bonta et al., 2000; Finn and Muirhead-Steves, 2002) address technical violations in their examinations of EM and “program completion.” Bonta et al. (2000) found no effect of EM on technical violations when the offender’s risk score is controlled for. Finn and Muirhead-Steves (2002) report that 76% of their sample of parolees placed on EM completed the EM program with no violations, but no comparable figures for parolees not on EM are provided for comparison.

With regard to “front-end” net-widening as a consequence of EM, some findings have been reported by Berry (1985), Schmidt (1991), and Vaughn (1987). However, the evidence reported to date has been limited to demonstrations of the relative “low risk” of the offenders most often sentenced to EM (Baumer and Mendelsohn, 1992; Bonta et al., 2000; Stanz and Tewksbury, 2000). No studies that we know of have systematically examined the “mechanism that operates to widen the net,” which Morris and Tonry (1990:225) contend lies in judicial decision making in the context of newly available intermediate punishments. However, a concern for potential front-end net-widening associated with EM and other intermediate sanctions, especially in terms of their application to “low-risk” offenders, is expressed repeatedly (Baumer and Mendelsohn, 1992; Clear et al., 1998; Gendreau et al., 2000; Morris and Tonry, 1990). These and other issues related to the use of EM have led Renzema (2003:5) to the same

question we attempt to answer here: “Is there at least evidence of reduction of reoffending to counterbalance these concerns [punitiveness, intrusiveness, and system expansion due to program failures]?”

Although some form of home confinement with EM had been implemented in all 50 states by 1990 (Renzema, 1992), there is still little known about its effectiveness as an alternative to incarceration or in protecting public safety by reducing rates of reoffending (Renzema, 2003; Tonry and Lynch, 1996; Vollum and Hale, 2002). Much of the literature on EM has been focused on descriptions of its history and the legal and ethical issues associated with its use (Beck et al., 1990; Berry, 1985; Blomberg et al., 1987; Brown and Elrod, 1995; Corbett and Marx, 1991; Erwin, 1990; Gainey and Payne, 2003; Gowen, 2001; Johnson et al., 1989; Payne and Gainey, 1999, 2000; Renzema, 1991; Schmidt, 1991).

Concerning the notable paucity of empirical evidence regarding EM's effectiveness, Gainey et al. (2000) conclude that research has not kept pace with the rapid implementation of the penal strategy, a conclusion reiterated by Vollum and Hale (2002) and Renzema (2003) in their reviews of that research. A meta-analysis of the effect of various intermediate sanctions on recidivism by Gendreau et al. (2000) includes only six effect size estimates for EM (4% of the total number of estimates included in the analysis), estimated from data on only 1,414 offenders (2.6% of the total number of offenders included in effect size estimates for all intermediate sanction types). Moreover, their findings for the effect of EM across these estimates ranges from a 2% decrease to an 8% increase in the rate of recidivism for offenders on EM when the relative number of estimates is taken into account.

In a more recent review and summary of the literature specific to the effect of EM on recidivism for moderate- and high-risk offenders, Renzema and Mayo-Wilson (2005) present a study search flow chart that illustrates the process by which a total of 154 EM studies is reduced to only three that meet their—somewhat stringent—criteria for selection (Bonta et al., 2000b; Finn and Muirhead-Steves, 2002; Sugg et al., 2001). They report their findings (based on the three qualifying studies) as “grim” (Renzema and Mayo-Wilson, 2005:230), concluding “no overall impact on recidivism.” However, a less critical eye might characterize the findings as “mixed” or “inconclusive.” Bonta et al. (2000b) find a positive effect of EM on treatment program completion and a negative effect of a combination of EM and treatment on recidivism. Finn and Muirhead-Steves (2002) find no effect of EM on recommitment to prison within three to four years after release from parole, but they report that none of the parolees in their sample returned to prison while on EM, and of the 128 parolees assigned to EM, 97 (75%) completed the EM program with no violations, 25 (20%) completed with “some” violations, and only 6

(5%) failed to complete. The third study reviewed by Renzema and Mayo-Wilson (Sugg et al., 2001) looked at reconviction rates for offenders who received curfew orders with EM in Norfolk, Manchester, and Reading, U.K., and found virtually equal two-year reconviction rates for offenders in the curfew/EM group and those in the control group. Despite the fact that these three studies met the criteria set by Renzema and Mayo-Wilson, some decided limitations and weaknesses are associated with them as well.

In addition to the three studies reviewed by Renzema and Mayo-Wilson (2005), we identified six studies that examined the effect of EM on recidivism and whose findings we think are relevant to this research and similarly mixed and inconclusive. Three of the six studies find a negative effect of EM on recidivism, measured as re-arrest while on supervision (Coop- rider and Kerby, 1990; Gainey et al., 2000; Jolin and Stipak, 1992), two studies report no effect (Bonta et al., 2000; Courtright et al., 1997), and one study (Cadigan, 1991) finds significantly higher rates of re-arrest for pre-trial releasees on EM as compared with national rates.

Another possible “outcome” of EM is absconding, or escape from supervision, which represents another threat to public safety, in that the absconder’s whereabouts are unknown to his/her probation officer and his/her activities unmonitored by any device—electronic or human. The literature on EM, however, has yet to address this outcome, with the exception of the two studies of pre-trial release offenders and the effect of EM on the likelihood of their failure to appear (FTA) (Cadigan, 1991; Coop- rider and Kerby, 1990). Like the findings for EM and technical viola- tions, the findings for EM and FTAs contradict each other. Cadigan (1991) finds higher rates for offenders on EM, whereas Coop- rider and Kerby (1990) find lower rates.

In sum, the prior research on EM’s outcomes indicates mixed evidence for its effectiveness in reducing the likelihood of “failure” for offenders on community supervision and weak evidence for its effect on widening the net of penal control. In addition, the data and methodological limitations of the prior studies demonstrate the clear need for more rigorous empiri- cal research, including richer data on a larger and more representative sample and an analytical technique that takes into account the complex nature of the experience of convicted offenders on home confinement and EM and their increased likelihood of recommitment to prison, or other incapacitative events, within the span of time from their admission to the follow-up period. The current study overcomes the limitations of previous studies by using data on a five-year cohort of offenders placed on home confinement in Florida ( $N = 75,661$ ). More importantly, this study takes advantage of the precision of coefficient estimation afforded by propor- tional-hazards regression and its accommodation of time-varying indepen- dent and dependent variables to model the supervision failure outcomes of

revocation for a technical violation, revocation for the commission of a new offense, and absconding from supervision.

## THE CURRENT STUDY

In 1983, Florida became the first state to legislate and implement a statewide home confinement program specifically designed to address the problem of exponential increases in prison admissions and the need for intermediate sanctions as an alternative to incarceration (Florida Department of Corrections (FDOC), 2001). As the program developed and admissions increased, it became apparent that even within the narrower category of home confinement, different offenders required different levels of supervision intensity and surveillance while on the program. Various approaches to case management were tried and revised, but the advent of RF technology as a viable option for closer surveillance of higher risk offenders reframed the issue and ushered in a second phase of home confinement supervision strategy in which EM became the primary differentiating factor in the treatment of offenders.

Since 1987, with legislative approval, the FDOC implemented RF monitoring as an additional surveillance technique for offenders on home confinement, and in 1998 the use of EM was expanded to include GPS monitoring for those offenders judged to be of higher risk to public safety and in need of an even higher level of surveillance while in the community. According to the FDOC (2003):

The additional features of inclusive and exclusive boundaries, two-way communication with the victim or the offender, location mapping for archives retrieval, immediate tamper notification and remote laptop tracking with a wireless modem for constant communication with the monitoring center, makes the GPS system the best available. It would seem logical that violations of home confinement would decrease because offenders would know in advance that violations are tracked in “near real time” 24 hours a day.

## METHODS

The data for this study were drawn from the FDOC’s Offender-based Information System (OBIS). The sample comprises 75,661 offenders placed on home confinement from 1998 to 2002. These “placements” include original sentences to home confinement, split sentences (prison followed by supervision) to home confinement, post-prison sentences (Home Confinement—Parole), and sentences to home confinement for a violation of probation.

As noted, one method for assessing the effectiveness of EM as an alternative to incarceration versus an enhancement that results in net-widening

has been the comparison of the relative “risk” to public safety of offenders sentenced to EM and offenders sentenced to community supervision without EM (Bonta et al., 2000; Gendreau et al., 2000; Renzema, 2003; Renzema and Mayo-Wilson, 2005). The logic underlying this kind of comparative analysis is that evidence of offenders who are sentenced to this new alternative being of no greater “risk” than offenders sentenced to the previously existing community supervision sanction lends support to a net-widening rather than an alternative-sentencing argument. Although Bonta et al.’s (2000) analysis uses the results of a self-reported questionnaire to measure “risk” as the Level of Service Inventory-Revised (LSI-R) score, they rely on a much broader definition of offender risk in making their case for a “net-widening” effect of EM. In their assessment of the prior research on EM and the relative risk of offenders placed on EM, Bonta et al. (2000) include factors such as prior record (Ball et al., 1988; Cadigan, 1991), violent versus nonviolent primary offense (Baumer et al., 1993; Maxfield and Baumer, 1990), DUI or traffic offenders only (Lilly et al., 1993), first offense or property offenders (Mortimer and May, 1997), or other “low-risk” offenders (Beck et al., 1990; Ontario, 1991; Roy, 1997; Whittington, 1987) as indicators of relative risk. A more recent examination of EM and front-end net-widening (Renzema and Mayo-Wilson, 2005) follows this course as well, defining offender “risk” in terms of prior record and primary offense convicted of. For this study, we use primary offense type (violent/not violent) and Florida’s sentencing guidelines scoring system as indicators of offender “risk” and contend that equal levels of risk for offenders on EM and offenders on home confinement without EM supports the net-widening argument as it applies to the imposition of harsher sentences, or “front-end” net-widening.

Although sentencing guidelines are just that—guidelines—from which judges can and do depart, Florida’s sentencing guidelines scoring system has been shown to serve as a valid indicator of “offender seriousness” (Burton et al., 2004). The weighted score produced by this system takes into account an offender’s primary offense and all additional offenses, his or her prior record and the seriousness of prior offenses, and other circumstances of the criminal event (victim injury, weapon use, supervision violation, etc.). In the absence of risk scores derived from psychological or other such inventories, this indicator of offender seriousness is the best available quantitative measure of the risk an offender poses to public safety.

To test the effectiveness of EM in reducing the likelihood of failure while on home confinement, three outcome measures—revocation for a technical violation, revocation for a new offense, and absconding—were modeled using proportional-hazards regression (survival) analysis. This statistical modeling technique allows for right-censoring and the inclusion



of time-varying independent variables as well as taking into account “time to failure” in the estimation of maximum-likelihood coefficients. The time variable used is weeks from placement on home confinement to release, and cases were right-censored on the week of the release event. When the release event was due to something other than one of the three types of supervision “failure” listed above—death, successful termination of supervision, sentence reduction to regular probation, etc.—the offender was considered “at risk” of failure for each of the weeks before that event and then right-censored, or dropped from the analysis. In the event of an offender remaining on active home confinement beyond 105 weeks (2 years) from placement, the case was censored at week 105.

## MEASURES

### DEPENDENT VARIABLES

As discussed, three outcomes of a period of supervision are modeled in the multivariate survival analysis—revocation for a new offense,<sup>1</sup> revocation for a technical violation, and absconding from supervision. In Florida, a revocation results from a court decision to terminate supervision for failing to meet the requirements of supervision. It is not, necessarily, an indicator of offender behavior, but an indicator of “getting caught” and the subsequent community supervision officer and judicial response. Both types of revocation—for a new offense or for a technical violation—are considered permanent releases, although many offenders are returned to community supervision with a new sentence. Absconding, on the other hand, does not in and of itself constitute a permanent release. FDOC (2005) defines absconding as follows: “Offender absconds from supervision; the whereabouts are unknown and the court issues a warrant for violation of supervision.” Supervision may or may not be terminated upon return from absconding. In this analysis, absconding is treated as a separate “outcome,” and an offender is still considered “at risk” for revocation after an absconding event.

For this study, a separate analysis was conducted for each of the three “outcome” measures—revocation for a technical violation, revocation for a new offense, and absconding. These outcome variables were dichotomized so that the value is zero for all weeks that an individual offender is at risk of the unsuccessful outcome but does not experience the event, and the value is 1 for the one week in which he or she does experience the unsuccessful outcome. As noted, for offenders who experience a release

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1. For this analysis, we collapsed the categories of “revocation for a new misdemeanor” and “revocation for a new felony” into one outcome variable, “revocation for a new offense.” Nearly three-quarters (71%) of revocations for a new offense are for a new felony offense.

event other than one of these “failures,” the outcome variable is coded 0 for all weeks up to the week of release, at which point the case is dropped from the analysis.

#### INDEPENDENT VARIABLES

The variable of primary interest in this analysis is whether the offender was placed on EM while on home confinement. Two dichotomous, time-varying variables were created to indicate time on EM in any given week—one for RF monitoring and one for GPS monitoring—to determine whether one device type has a greater or lesser effect on the outcome variables than the other. Comparing the relative effectiveness of the two types of EM is important because one type—GPS monitoring—involves considerably more intensive and precise surveillance than the other (RF monitoring), which means it should be more effective in deterring and incapacitating the offender and more likely to “catch” offenders violating the conditions of their community supervision. Unlike RF monitoring, which only provides surveillance when the offender is in his or her home, GPS monitoring tracks the location of offenders and maps their whereabouts for retrieval by the community supervision officer (FDOC, 2005).

#### CONTROL VARIABLES

Several variables were included in the analysis to control for any offender characteristics, criminal history, or current period of supervision circumstances related to the likelihood of an unsuccessful outcome. Table 1 presents descriptive statistics for these control variables, the dependent variables, and the two independent variables of primary interest. Each of the time-varying independent variables, like the dependent variables, was dichotomized so that its value is 1 for any week in which the condition applies to an individual offender and 0 for any week in which it does not. In Table 1, these variables are presented in terms of the proportion of the entire sample to which the condition applied at any time during the risk period.

**TABLE 1. DESCRIPTIVES OF VARIABLES INCLUDED IN THE ANALYSIS**

<b>Variables</b>	<b>Definition/Coding</b>	<b>Percentage/ Mean</b>
<i>Dependent Variables</i>		
Revocation for a technical violation	Yes = 1 for week in which revocation event occurs; 0 for each week prior	30.4%
Revocation for a new offense	Yes = 1 for week in which revocation event occurs; 0 for each week prior	10.8%

Variables	Definition/Coding	Percentage/ Mean
Absconded from supervision	Yes = 1 for week in which absconding event occurs; 0 for each week prior	15.7%
<i>Electronic Monitoring</i>		
Radio-frequency monitoring	On radio frequency monitoring [Yes = 1 for week(s) on]	4.3%
GPS monitoring	On global positioning system monitoring [Yes = 1 for week(s) on]	3.0%
<i>Offender Characteristics</i>		
Male	Sex (male = 1)	78.8%
White	Race (white = 1)	59.7%
Age at admission	Age in years	30.74
Residency confirmed	Address is confirmed and permanent (yes = 1)	51.6%
Employed while supervised	Employed for at least one day during period of supervision (yes = 1)	66.0%
<i>Offender History/Prior Record</i>		
Habitual offender	Habitual offender (yes = 1)	1.0%
Habitual violent offender	Habitual violent offender (yes = 1)	0.0%
Ever committed to prison	Ever been committed to prison in Florida (yes = 1)	18.9%
Prior commitments to supervision	Number of prior supervision commitments in Florida	1.46
Ever absconded	Ever absconded from supervision (yes = 1)	17.6%
Ever revoked—felony	Supervision ever revoked for a new felony (yes = 1)	17.6%
Ever revoked—misdemeanor	Supervision ever revoked for a new misdemeanor (yes = 1)	7.9%
Ever revoked—technical	Supervision ever revoked for a technical violation (yes = 1)	32.7%
HC placement for VOP	Place on HC for a violation of probation (yes = 1)	40.6%
<i>Court-Ordered Conditions of Supervision</i>		
Domestic violence treatment	Participate in domestic violence treatment (yes = 1)	0.6%
Education/GED	Educational program and/or prepare for GED (yes = 1)	1.4%
Psychological treatment	Receive psychological treatment (yes = 1)	2.5%
Residential drug treatment	Residential drug treatment (yes = 1)	6.1%
Sex offender treatment	Participate in sex offender treatment (yes = 1)	0.9%
Drug testing	Drug testing (yes = 1)	50.6%
Outpatient drug treatment	Participate in outpatient drug treatment (yes = 1)	16.9%
Public service hours	Complete public service hours (yes = 1)	2.3%
<i>Current Sentence</i>		
HC-Parole	HC under parole supervision (yes = 1)	0.1%
HC-Sex Offender	Sex Offender HC (yes = 1)	0.8%
Serving split sentence	Split sentence (yes = 1)	2.1%

Variables	Definition/Coding	Percentage/ Mean
Sentence days	Number of days offender sentenced to HC	1715.2
Mitigated	Sentence mitigated—Scored to prison under guidelines (yes = 1)	34.1%
Circuit of supervision	Judicial circuit offender supervised at time of “failure” or successful completion	*
<i>Current Offense</i>		
Murder	Primary offense is murder/manslaughter (yes = 1)	0.7%
Sex offense	Primary offense is a sex offense (yes = 1)	3.9%
Robbery	Primary offense is robbery (yes = 1)	3.3%
Other violent	Primary offense is other violent (yes = 1)	14.0%
Burglary	Primary offense is burglary (yes = 1)	10.9%
Theft	Primary offense is theft (Yes = 1)	19.2%
Drug offense	Primary offense is a drug offense (reference category)	34.2%
Weapons offense	Primary offense is a weapon offense (yes = 1)	2.5%
Other offense	Primary offense is “other” offense (yes = 1)	9.4%
Principal	Offender was principal in a completed act (yes = 1)	97.7%
Counts	Number of offenses convicted of	1.1
<i>Time-Varying Factors in Current Period of Supervision</i>		
Abscond event	Offender in absconder status [yes = 1 for week(s) in]	17.4%
Treatment event	Offender in residential drug treatment [yes = 1 for week(s) in]	14.1%
Drug court event	Offender participating in drug court [yes = 1 for week(s) in]	4.1%
Non-reporting event	Offender in non-reporting status [yes = 1 for week(s) in]	46.7%

\*Overall, 19 of the 20 dummy variables were included in the models. Distributions of cases by circuit available on request from the authors.

In all, 62 independent variables are included in each proportional-hazards regression model, not counting the reference categories for the multinomial variables. The control variables include indicators of community supervision success or failure in the following categories: sociodemographic characteristics of the offender and his/her criminal history and prior record; factors related to the offender’s current term of community supervision, including any conditions and provisions of supervision or other sentence-event differences, the judicial circuit in which the offender was being supervised, and the primary offense for which the offender was convicted; and time-varying events that occurred within the period of supervision being examined that resulted in the offender avoiding surveillance by the community supervision officer (i.e., absconding), being subjected to a greater level of surveillance (i.e., participating in drug court), or

being incapacitated (i.e., in a residential drug treatment facility or in the county jail) for a certain amount of time.

*Sociodemographic Characteristics of the Offender.* Age, race, and sex are included to control for the well-established relationship between these demographic characteristics and success or failure on community supervision. The two additional sociodemographic variables, permanence of residency and employment status, are included as measures of the offender's lifestyle stability.<sup>2</sup> Marital status, another measure of lifestyle stability, was not included in our models. Although data on marital status are collected for offenders committed to prison in Florida (however, it is worth noting that, on average, 36% of those data is missing), they are not collected for offenders placed on community supervision. It is expected that if data were available, the variable for marital status would have an effect on the likelihood of an offender being revoked or absconding; however, it does not necessarily follow that this effect would prove a source of spuriousness for the EM—revocation or EM—absconding relationship. Further research on the differences between offenders placed on EM and those not placed on EM is needed to determine whether lifestyle and stability measures have an effect on both the likelihood of placement on EM and the likelihood of revocation or absconding.

*Current Primary Offense.* Three aspects of the offender's current primary offense<sup>3</sup> were included in the multivariate models: primary offense category, whether the offender was the principle in a completed act (not an attempt), and the number of counts for which he or she was convicted. For this analysis, the "primary" offense was coded according to the nine-group categorization of offenses established and used by the FDOC: (1) murder/manslaughter, (2) sex offenses, (3) robbery, (4) other violent/personal offenses, (5) burglary, (6) theft, (7) drug offenses, (8) weapons offenses, and (9) "other" offenses. Current primary offense category dummy variables are included in the multivariate analyses to control for the known association between offense type and community supervision outcome.

*Current Sentence.* In addition to current offense, we include aspects of the current sentence as control variables in the multivariate models. Within

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2. Data on offender marital status and educational level were not available, nor were data on arrest history, prior county jail incarceration, or prior convictions in other states.

3. Each placement on home confinement is associated – by a unique (to the offender) "prefix" code – to a particular sentencing event. An offense is designated as primary for that sentencing event by means of a formula that takes into account the seriousness of the offense (according to the offense code), the level of the charge (Capital Life, Life, 1st, 2nd, 3rd –degree felony, etc.), and the associated sentence length.

the home confinement program as a whole, separate conditions are mandated for offenders placed on sex-offender home confinement and for post-prison releasees on home confinement—parole. The particular circumstances and characteristics of these offenders are controlled for with dummy variables for the type of home confinement to which the offender is sentenced. Similarly, offenders serving a split (prison then home confinement) sentence and those originally sentenced to probation and later placed on home confinement for a violation are taken into account with dummy variables for “split sentence” and “home confinement placement for VOP,” respectively. Sentence length is controlled for with a continuous variable measuring the number of days the offender was sentenced. If the offender’s sentence was mitigated, meaning that he or she “scored” to prison according to the Florida’s Sentencing Guidelines but was sentenced to home confinement instead, we take that into account with a dummy variable where mitigated is 1.

*Conditions of Supervision.* In addition to the standard conditions of home confinement, offenders can be held to several special provisions stipulated by the sentencing judge. These include participation in a treatment program (domestic violence, psychological, drug, and/or sex offender treatment), participation in an educational program, regular drug testing, and/or the completion of public service hours, all of which are controlled for with dummy variables to indicate whether the provision was court-ordered. Dates of attendance for outpatient treatment programs were not available, but time-varying variables reflecting weeks in which an offender was in residential drug treatment or participating in drug court were included to control for the incapacitation effect of residential drug treatment, at which point an offender would be at lower risk for reoffending or absconding, and for the more stringent conditions imposed on offenders in drug court, who would be at greater risk for technically violating during that time. A time-varying variable for “non-reporting status” is also included, as this status is assigned to offenders who are temporarily incarcerated in a county jail and, therefore, at lower risk for reoffending or absconding.

*Circuit of Supervision.* Finally, the judicial circuit in which the offender was being supervised is included to control for local-level discretion in “violation” policies and judicial decision making. If and when an offender was transferred from one circuit to another, the circuit variable was recoded to reflect that change for the week in which it took place and the weeks thereafter. The distribution of home confinement placements by circuit is available from the authors upon request.

FINDINGS

TABLE 2. OFFENDER SERIOUSNESS AND LEVEL OF CONTROL—PERCENTAGES AND MEAN VALUES FOR OFFENDERS WITH AN ORIGINAL SENTENCE TO HOME CONFINEMENT

	No Electronic Monitoring	Electronic Monitoring		
		Total EM	Radio Frequency	GPS
Primary offense was violent	19.4%	38.7%*	30.9%	53.8%**
Scored to prison under sentencing guidelines	30.1%	46.2%*	41.8%	54.6%**
Scored to prison for primary offense only	21.0%	38.5%*	33.3%	48.5%**
Mean sentencing guidelines points for primary offense	36.5	59.7*	49.7	79.0**
Mean total sentencing guidelines points	42.4	64.4*	54.3	83.8**
N	45,475	3,347	2,203	1,144

\*Difference between EM and No EM (RF and GPS combined) is statistically significant ( $p < 0.001$ ).

\*\*Difference between RF and GPS is statistically significant ( $p < 0.001$ ).

Table 2 presents the results of an analysis comparing the relative “risk” of EM offenders and offenders sentenced to home confinement without EM as indicated by the nature of their primary offense (violent vs. not violent) and their calculated sentencing guidelines scores. Specifically, the sentencing guidelines score sheet data are used in four different ways to measure the level of risk: whether offenders scored to a recommended prison sentence (total points of 45 or greater), whether the primary offense points alone resulted in a recommended prison sentence, the mean points for the primary offense, and the mean total guidelines points.

The comparisons of risk, or seriousness, levels for home confinement offenders with and without EM in Table 2 show that for all five measures, EM offenders have statistically significant ( $p < 0.001$ ) higher levels than those for offenders not on EM. Additionally, offenders on the higher level surveillance EM modality of GPS have risk levels significantly higher ( $p < 0.001$ ) than those under the less controlling RF monitoring mechanism on all five risk measures. Specifically, EM offenders are more likely to have committed a violent offense and more likely to have “scored” to prison, and their mean sentencing guidelines points scores, in terms of the total points and points for the primary offense alone, are significantly higher than those for offenders sentenced to home confinement without EM ( $p < 0.001$ ).

Whether these offenders would have received a sentence to prison in the absence of the EM alternative is impossible to determine using secondary data. However, these findings do indicate that offenders on EM are, on average, more serious offenders, and their perceived risk to the community makes them more likely than offenders not on EM to be sentenced to prison in the absence of the EM alternative. Additionally, offenders sentenced to supervision under the enhanced level of offender control through GPS instead of RF are clearly more serious offenders and considered more of a risk to public safety.

**TABLE 3. OFFENDER SERIOUSNESS AND LEVEL OF CONTROL—PERCENTAGES AND MEAN VALUES BY PRIMARY OFFENSE CATEGORY**

	No Electronic Monitoring	Total EM	RF	GPS
<i>Primary Offense = Violent</i>				
Scored to prison under sentencing guidelines	58.5%	72.7%*	69.3%	76.6%**
Scored to prison for primary offense only	50.3%	68.2%*	64.1%	72.7%**
Mean sentencing guidelines points for primary offense	62.5	100.0*	85.6	116.0
Mean total sentencing guidelines points	66.6	103.1*	88.3	119.4**
N	8,798	1,295	680	615
<i>Primary Offense = Property</i>				
Scored to prison under sentencing guidelines	28.0%	38.9%*	39.9%	36.2%
Scored to prison for primary offense only	21.0%	31.4%*	32.2%	29.4%
Mean sentencing guidelines points for primary offense	33.4	41.3*	41.2	41.5
Mean total sentencing guidelines points	39.0	46.3*	45.7	47.7
N	13,771	831	596	235
<i>Primary Offense = Drug</i>				
Scored to prison under sentencing guidelines	21.0%	23.5%	23.4%	23.6%
Scored to prison for primary offense only	10.3%	12.7%*	12.2%	14.1%
Mean sentencing guidelines points for primary offense	30.2	32.0*	31.4	33.7
Mean total sentencing guidelines points	36.3	37.4	36.7	39.4
N	17,038	844	624	220

\*Difference between No EM and EM (RF and GPS combined) is statistically significant at  $p < 0.001$ .

\*\*Difference between RF and GPS is statistically significant  $p < 0.001$ .

To further address the issue of whether EM is, in fact, an alternative to prison at the “front-end” of the sentencing process, Table 3 presents the same four sentencing guidelines indicators of the seriousness of the offender’s current and past criminal actions, separately, within each of three primary offense categories (violent, property, and drug). Within the



violent and property crime categories, the results are similar to those reported in Table 2 for all offenders. Specifically, offenders on home confinement with EM of either type exhibit significantly higher risk scores on all four of the sentencing guidelines measures ( $p < 0.001$ ). However, mixed results are found in comparisons of those offenders monitored under GPS versus RF. For violent offenders, GPS offenders are found to be significantly more serious and pose a greater risk to the community ( $p < 0.001$ ) than those under RF surveillance for the same four measures as for all offenders combined. For property offenders, however, the differences virtually disappear, indicating no greater risk to the community from offenders placed on the more intensive GPS monitoring than from those placed on RF monitoring.

For drug offenders, the picture is slightly different when comparing EM with non-EM offenders and RF with GPS offenders. Although drug offenders on EM are significantly more likely to have scored to prison for their primary offense and to have higher mean sentencing guidelines points for their primary offense, the differences disappear when the total sentencing points are compared. Furthermore, regardless of statistical significance, differences for all four measures are considerably smaller for drug offenders than for violent or property offenders, both for EM vs. non-EM offenders and RF vs. GPS offenders.

This analysis of the differences in risk levels, or offender seriousness, between offenders on home confinement with and without EM and between those on RF versus the more intrusive GPS provides no clear evidence that, overall, the decision to monitor offenders on home confinement with enhanced electronic control mechanisms results in “front-end” net-widening. In other words, offenders sentenced to home confinement with EM seem to have posed a significantly higher risk to public safety and would have had a higher likelihood of receiving a prison sentence if not for the availability of EM as an enhanced control mechanism. However, possible “front-end” net-widening for drug offenders is suggested by findings that show that non-EM drug offenders exhibit almost equivalent levels of risk to the public as those placed on the more controlling EM program.

Although the question of “front-end” net-widening remains somewhat elusive, relying on proxies to indicate the likelihood of a sentence to prison in the absence of qualitative data on judicial decision making, the question of “back-end” net-widening is more easily addressed and answered. With the introduction of intermediate sanctions into the continuum of punishment alternatives came the concern that these more intensive forms of community supervision, with their stricter conditions and closer surveillance, would increase the likelihood of an offender violating

those conditions and getting caught doing so. The fact that EM of offenders on home confinement constitutes the last option before prison, it seems likely that a violation while on EM would result in a sentence to prison, therefore, widening the net.

Table 4 presents the results of the proportional-hazards regression modeling of the likelihood of revocation for a technical violation within two years (104 weeks) of the first day of placement on home confinement for the 75,661 offender placements in our sample.<sup>4</sup> The parameter estimates tell us the direction of the effect of the independent and control variables on the likelihood of revocation and whether those effects are statistically significant. The hazard ratios indicate the relative likelihood of revocation and time to revocation across categories or values of the independent and control variables. These ratios can be converted to percentage differences with the formula:  $(1 - \text{Hazard Ratio}) * 100$ .

TABLE 4. PROPORTIONAL-HAZARDS MODEL RESULTS FOR LIKELIHOOD OF REVOCATION FOR A TECHNICAL VIOLATION

Variables	Total Sample		Violent Offenders		Property Offenders		Drug Offenders	
	Parameter Estimate	Hazard Ratio	Parameter Estimate	Hazard Ratio	Parameter Estimate	Hazard Ratio	Parameter Estimate	Hazard Ratio
RF monitoring	-3.135***	0.043	-3.430***	0.032	-2.905***	0.055	-3.268***	0.038
GPS monitoring	-2.322***	0.098	-2.444***	0.087	-2.549***	0.078	-1.875***	0.153
<i>z-score for difference in coefficients</i>		2.962***		2.052**		0.637		2.501**
Murder	-0.492***	0.612						
Sex offense	-0.004	0.996						
Robbery	-0.057	0.944						
Other violent	-0.154***	0.857						
Weapons offense	-0.168***	0.846						
Other offense	-0.139***	0.870						
N		74,276		16,586		22,801		25,885

NOTE: Models shown include all offender demographic and prior record variables, as well as current term of supervision control variables, as displayed in Table 1.

\*\*  $p < 0.01$ .

\*\*\*  $p < 0.001$ .

4. Due to space limitations, the full models, including all the control variables presented in Table 1, are not presented in Tables 4, 5, and 6, and only the variables of interest are displayed. The results of the full models are available from the authors.

Unlike previous findings of a “surveillance” effect, our findings indicate that offenders on EM are *less* likely to be revoked for a technical violation. In fact, and surprisingly, offenders on RF monitoring are 95.7% less likely and offenders on GPS monitoring are 90.2% less likely than offenders on home confinement without EM to be revoked for a technical violation. However, the difference in the magnitude of these effects is statistically significant ( $z$ -score = 2.962), which partially supports the “surveillance effect” hypothesis, in that offenders on the more intense form of electronic surveillance are more likely than those on the less intense form to get caught violating the conditions of their home confinement sentence. Secondly, these findings show that the prohibitory effect of EM on technically violating holds true for offenders in all three primary offense categories and has virtually the same degree of effect across the three categories. This finding is of particular significance given that EM is used at a considerably higher rate for violent offenders (12.3%, compared with 5.7% and 4.7% for property and drug offenders, respectively) and that violent offenders are significantly less likely than property and drug offenders (the reference category) to be revoked for a technical violation, whether they are placed on EM.

Although one set of concerns related to the addition of EM to home confinement sentences is that it will widen the net of control, another set of concerns has to do with public safety and the effectiveness of EM in deterring or incapacitating offenders living in the community. Table 5 presents the results of the proportional-hazards regression modeling of the likelihood of revocation for a new offense, our primary measure of risk to public safety, and Table 6 presents those same results for the likelihood of absconding from supervision, a second measure of offender risk to public safety.

For both outcomes, the results show that EM significantly reduces the likelihood of failure and that the degree to which that likelihood is reduced is about the same for revocation for a new offense and absconding. For the total sample of offenders, the hazard ratio of 0.053 for both forms of EM and revocation for a new offense indicates a 94.7% reduction in the likelihood of revocation for offenders on RF or GPS versus no form of electronic surveillance. For violent, property, and drug offenders, the percent reduction ranges from 89.8 to 98.1 for RF and from 91.4 to 95.5 for GPS (note that within the category of drug offenders, too few offenders were placed on GPS monitoring and committed a new offense to produce a valid parameter estimate). Although these figures indicate that RF monitoring is slightly more effective than GPS monitoring and slightly more effective for violent than for property or drug offenders, the overall range in the rate of reduction for EM versus no EM is very small. Where public

TABLE 5. PROPORTIONAL-HAZARDS MODEL RESULTS FOR LIKELIHOOD OF REVOCATION FOR A NEW OFFENSE

Variables	Total Sample		Violent Offenders		Property Offenders		Drug Offenders	
	Parameter Estimate	Hazard Ratio	Parameter Estimate	Hazard Ratio	Parameter Estimate	Hazard Ratio	Parameter Estimate	Hazard Ratio
RF monitoring	-2.933***	0.053	-3.947***	0.019	-2.283	0.102	-3.146***	0.043
GPS monitoring	-2.929***	0.053	-2.461***	0.085	-3.097**	0.045	-15.150+	0.000
<i>z-score for difference in coefficients</i>	<i>0.007</i>		<i>1.327</i>		<i>0.753</i>		<i>0.024</i>	
Murder	-0.882***	0.414						
Sex offense	-0.593***	0.552						
Robbery	-0.089	0.915						
Other violent	-0.223***	0.800						
Burglary	-0.003	0.997						
Other property	0.073*	1.076						
Weapons offense	-0.177*	0.838						
Other offense	0.114**	1.121						
	74,276		16,586		22,801		25,885	

NOTE: Models shown include all offender demographic and prior record variables, as well as current term of supervision control variables, as displayed in Table 1.

+ Too few cases to produce a valid parameter estimate.

\*  $p < 0.05$ .

\*\*  $p < 0.01$ .

\*\*\*  $p < 0.001$ .

safety is concerned, either form of electronic surveillance seems to significantly reduce the likelihood of reoffending for all three “types” of offender.

Absconding from supervision is an outcome measure that has not, to date, been addressed in the literature on EM and home confinement. However, its implications for public safety and the relative frequency of its occurrence suggest that absconding and the potential for EM to reduce the rate of absconding should be considered in any test of the effectiveness of EM. As of December 30, 2004, more than 40,000 of the 114,891 offenders on community supervision in Florida were classified as absconders, their “whereabouts unknown” (FDOC, 2005). In our sample of 75,661 offenders on home confinement, 11,857 (15.7%) absconded from supervision at some point within two years of placement, and 1,911 (16.1%) of those absconders were subsequently revoked for a new offense. This rate of reoffending is considerably higher than that for the offenders who did not

TABLE 6. PROPORTIONAL-HAZARDS MODEL RESULTS FOR LIKELIHOOD OF ABSCONDING

Variables	Total Sample		Violent Offenders		Property Offenders		Drug Offenders	
	Parameter Estimate	Hazard Ratio	Parameter Estimate	Hazard Ratio	Parameter Estimate	Hazard Ratio	Parameter Estimate	Hazard Ratio
RF monitoring	-2.426**	0.088	-3.149**	0.043	-1.869**	0.154	-2.571**	0.076
GPS monitoring	-2.325**	0.098	-2.432**	0.088	-1.899**	0.150	-2.203*	0.111
<i>z-score for difference in coefficients</i>	0.260		0.855		0.051		0.424	
Murder	-1.247*	0.287						
Sex offense	-0.538*	0.584						
Robbery	-0.198*	0.821						
Other violent	-0.289*	0.749						
Burglary	0.012	1.012						
Other property	-0.045	0.956						
Weapons offense	-0.497*	0.608						
Other offense	-0.198*	0.820						
N	74,276		16,586		22,801		25,885	

NOTE: Models shown include all offender demographic and prior record variables, as well as current term of supervision control variables, as displayed in Table 1.

\*  $p < 0.01$ .

\*\*  $p < 0.001$ .

abscond (9.8%) and indicates an increased risk to public safety of offenders who escape surveillance. The results presented in Table 6 indicate that EM also has a prohibitive effect on the likelihood of absconding, with statistically significant parameter estimates and hazard ratios of 0.088 and 0.098 for RF and GPS monitoring, respectively. Again, this effect is the same for both types of EM ( $z$ -score for difference in coefficients is 0.260) and varies only slightly for the three categories of primary offense type.

These findings consistently demonstrate that either form of EM significantly reduces the risk to public safety from offenders living in the community. Moreover, our findings for the effect of EM on the likelihood of revocation for a technical violation indicate that rather than widening the net of penal control, the addition of electronic surveillance to a home confinement sentence may actually reduce the probability of eventual imprisonment and, therefore, effectively serve as a useful alternative sanction. Notwithstanding the limitations of using official data to represent the complex circumstances of offenders serving a sentence to home confinement and the complexities of officer discretion and judicial decision making,

these findings suggest that the dual goals of reducing the number of admissions to prison while protecting public safety may, in fact, be achieved via the introduction of newer and more refined means of offender surveillance.

## SUMMARY AND DISCUSSION

The findings reported here have addressed two questions related to the net-widening effect and the public safety effectiveness of EM for offenders on home confinement. With regard to net-widening, the findings provide only scant support for a net-widening effect resulting from the addition of EM into Florida's home confinement program. Using primary offense type (violent or not) as the measure of offense seriousness, it was shown that those offenders on home confinement with EM were significantly more likely to have committed a violent offense as compared with those offenders on home confinement without EM. Additionally, those offenders on home confinement with GPS monitoring were even more likely than those with RF monitoring to have committed a violent offense. Furthermore, using sentencing guideline scores as an indicator of the likelihood of a prison sentence, offenders on home confinement with EM had a greater likelihood of a prison sentence than did offenders on home confinement without EM. Similarly, offenders on home confinement with GPS had a greater likelihood than those offenders on home confinement with RF of receiving a prison sentence in the absence of some form of home confinement. However, when all home confinement offenders were divided into primary offense type groups, the positive relationship between relative levels of control (i.e., No EM, RF, and GPS) and the likelihood of a prison sentence held true for violent and, to a lesser extent, property offenders, but significantly decreased for drug offenders, demonstrating that the net may, in fact, have widened for this group of offenders. With regard to "back-end" net-widening, EM was found to decrease rather than increase the likelihood of revocation for a technical violation, which contradicts the expectation of a surveillance effect.

In relation to public safety effectiveness, EM was found effective in reducing the likelihood of reoffending and absconding while on home confinement. Both RF and GPS significantly reduced the likelihood of revocation for a new offense and absconding from supervision, even when controlling for sociodemographic characteristics of the offender, current offense, prior record, and term of supervision factors and conditions. The use of GPS monitoring compared with the use of RF monitoring was found to be no more likely to reduce revocations or incidents of absconding. However, the use of either GPS or RF monitoring had virtually the

same inhibiting effect on revocations and absconding for violent, property, and drug offender groups on home confinement.

## POLICY IMPLICATIONS

As for the policy implications of this research, it is important to note that the statistical modeling technique used in our analysis, proportional-hazards regression (survival analysis), takes into account the timing of an event and its occurrence in relation to the timing of placement on and removal from electronic monitoring. Therefore, our findings are limited to the effect of EM while the offender is actually being monitored, not after he/she completes the program. Although we agree with Renzema (2003:9) that “Many agencies using EM neither build rehabilitation components into their programs nor expect an enduring impact,” and the informational literature related to EM that has been produced by the FDOC indicates the same, further study of the long-term effects of EM is needed before drawing conclusions about a rehabilitative effect or basing policy decisions on such an effect. However, our findings do indicate that home confinement with EM can effectively serve an incapacitation and/or deterrence role in protecting public safety.

Additional policy implications of this research include decision making regarding which offenders should be placed on EM, which type of monitoring device will be the most cost-effective and efficient, and the potential for front-end net-widening if states adopt a practice of “Got ‘em?’ Use ‘em.’” The first two of these policy issues are addressed directly by the results of our analysis, whereas the third calls for further research and some monitoring of our own. Regarding decisions about which offenders should be placed on EM, our findings show that:

- 1 EM works for serious offenders—Much of the previous research has looked at less serious offenders, whereas we find an effect of EM on technical violations, reoffending, and absconding for a cohort of offenders judged too serious to be placed on regular probation. This overall finding bodes well for EM’s anticipated use for sex offenders and other, more serious, offenders.
- 2 EM works equally well for all “types” of serious offenders, when offender type is defined as the category of the offender’s primary offense (violent, property, or drug). Assuming that EM devices will not be available for every offender placed on community supervision, the decision about which offenders should be electronically monitored will need to be based on more than his or her primary offense. Further research should address the factors associated with success on EM.

As much of the new legislation related to EM is specific to sex offenders

on EM after release from prison, it should be noted that our findings also indicate that sex offenders are less likely than all other types of offenders to have their supervision revoked for a new offense or to abscond and no more or less likely to have their supervision revoked for a technical violation, even when controlling for EM status, and that less than 3% of the offenders in our sample were on parole or serving the second half of a split sentence.

Regarding decisions about which type of monitoring device is most cost-effective and efficient, our findings show that RF is just as effective as GPS in reducing the likelihood of an offender absconding or being revoked for a new offense and slightly more effective than GPS in reducing the likelihood of revocation for a technical violation. Given these findings, policy makers should consider whether GPS monitoring is worth its price. Although this study did not include an in-depth cost analysis of RF versus GPS or EM versus imprisonment, raw cost figures for EM in the State of Florida indicate considerable differences per diem. According to the FDOC (Brooks, 2005), the current (as of July 1, 2005) per diem cost for active GPS monitoring is \$8.97, as compared with \$1.97 for RF monitoring. The per diem cost for prison is \$51.22. At more than four times the cost, policy makers may want to reconsider their commitment to GPS over RF monitoring.

Finally, policy makers need to consider the potential for front-end net-widening as a result of states procuring great numbers of devices to meet the mandates of recent legislation and then keeping all of the devices "in service" regardless of real need. Lawmakers would do well to consider amendments to sentencing guidelines legislation that would specify a point range for which home confinement with EM would be the recommended sentence. In Florida, where there is no pre-trial risk-assessment instrument to guide the sentencing decision, such a point-range guideline would be preferable to blanket policies targeted at specific offender "types" or unlimited judicial discretion. Another option would be to limit the sentence of home confinement with EM to offenders who "score to prison" under the sentencing guidelines, thereby ensuring the use of EM only as a true alternative to incarceration. The adoption of the latter policy is unlikely, and in the end, we have to agree with Morris and Tonry (1990:218) that "all one can hope for is that the important desideratum of parsimony in punishment will restrain enthusiasms [for electronic 'tracking'] and respect autonomy."

## THEORETICAL IMPLICATIONS

Such theoretical abstractions as net-widening, dispersal of discipline, transcarceration, carceral society, maximum security society, and culture of control have been proposed to capture and account for the reported



negative and unintended consequences of various penal reforms. Whether concerned with the disparity between the ideas and the policies of penal reform strategies or what these patterned disparities have meant in terms of larger or master penal control shifts, the focus has been on what was believed to be ever expanding penal control. Moreover, it is important to acknowledge that these theoretical abstractions have not only been useful in understanding certain aspects and potentials of penal reforms but were informed by some degree of empirical support for their negative and unintended consequences.

However, and as demonstrated by this study's findings for Florida's statewide home confinement and EM program, also salient *intended* outcomes are associated with this particular penal reform. The question, therefore, is do these findings mean "bad news" for the leading theoretical interpretations of penal reform, which have been largely focused on negative and unintended consequences? Or, alternatively, do these findings provide evidence that must and can be successfully confronted and interpreted by modifying and refining some of the existing penal reform theories? We believe it is the latter, and the task at hand is to reconcile unexpected findings of intended consequences with the larger, theoretical issues surrounding the concept of social control. Lianos's (2003:412) observation that "the question of control presents itself inevitably in the light – or should one say in the shadow?—of its social utility" is especially relevant here. Although EM seems to effectively thwart offenders from reoffending or otherwise threatening public safety, it simultaneously affords a degree of surveillance that would likely offend the sensibilities of the average, "free" citizen of the Western world.

EM presents a new challenge for both theorists and policy makers. Not only is the EM of offenders in the community an intermediate sanction and, therefore, a subject for discussion and debate in that context, it is also a means of surveillance made possible only by recent advances in computer and electronic technology. As such, the EM of offenders falls within the broader discussion of electronic surveillance in general. It seems likely that current and future developments in technology will result in ever increasing levels of personal transparency for both offenders and citizens alike. Certainly this possibility poses an increasingly urgent and important mandate—we need to confront these current and future control strategies and technologies with comprehensive and rigorous empirical, theoretical, and public policy scrutiny. The traditional "great divide" among research, theory, and public policy must be routinely bridged if responsible penal and public policies are to be implemented in this era of a technology-driven "culture of control."

In conclusion, this emerging technological culture of control poses both

positive and negative outcome potentials. Various new forms of technology can be used to produce more refined forms of control and regulation for offenders and citizens alike that are capable of not only negative and unintended consequences but also of being used in a manner that produces maximum desired results with minimum imposition. Technology makes it possible to control subjects in more discerning, less heavy-handed ways. Greater technological control capacities need not always result in more control. Rather, it depends on the uses to which these technologies are put, which depends, in turn, on the pressure that is placed on the control agents and technological methods to be used so that they are in accord with our civil liberties and social values. Consequently, systematic and responsible research is fundamental if we are to maximize the positive and minimize the negative potentials associated with the uses and impacts of these technologies in our fast changing culture of control (Garland, 2004).

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