

Research on the Effectiveness of Pretrial Electronic Monitoring

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Since becoming commercially available in 1984, electronic monitoring (EM) has been used as a condition of pretrial release both in federal and state systems. However, few studies have examined the effect of EM on pretrial outcomes, such as failure to appear (FTA), re-arrest for a new crime while on release, or technical violations, such as curfew violations, unauthorized absences, or tampering with EM equipment (Coopridner & Kerby, 1990, p. 32). This paper discusses the origins and history of EM and the literature concerning its effects on these outcomes.

This paper does not address EM imposed after conviction. Research has found that individuals subject to EM behave differently in pre and post-trial settings. Researchers believe this may be attributable to defendants in a pretrial setting believing they can avoid consequences by failing to appear. Meanwhile, those under post-trial EM may see completing the program and moving out of the system as a benefit, which makes them less likely to fail (Baumer, Maxfield, & Mendelsohn, 1993, pp. 135-136). For this reason, this paper focuses on pretrial EM, which is the approach of the four papers discussed below (Cadigan, 1991; Coopridner & Kerby, 1990; Sainju et al., 2018; Wolff, Dozier, Muller, Mowry, & Hutchinson, 2017).

A Short History of Pretrial EM

EM technology first became commercially available in 1984 (Baumer et al., 1993, pp. 121-122) when the 1984 Bail Reform Act was passed and federal courts were showing a greater willingness to order states to resolve jail overcrowding (Baumer et al., 1993, p. 123; Cole & Call, 1992, pp. 29, 35-36; Wolff et al., 2017, p. 8). Alongside a growing desire to alleviate some of the negative consequences of pretrial detention, this environment led to the operation of EM programs in all states by 1990¹ (Baumer et al., 1993, p. 121).

Early uses of pretrial EM were limited by radio frequency (RF) technology, which is restricted to alerting an officer when an individual leaves a preset area, deviates from an approved schedule, or tampers with the equipment (Wolff et al., 2017, pp. 8-9). In later years, GPS emerged as another EM option. GPS can continuously track defendants, has greater programming flexibility, and can track defendants over a much larger area than RF (Gur, Ibarra, & Erez, 2016, pp. 34-35). A 2003 survey of state and federal pretrial services programs found that 54% use at least one form of electronic monitoring (Clark & Henry, 2003, p. viii). Similarly, a 2009 survey of 171 state and local jurisdictions found that nearly half reported having the capability to use GPS for pretrial monitoring, and 64% reported being able to supervise home confinement with EM (Pretrial Justice Institute, 2009, p. 36).

Early Studies of Pretrial EM

¹ Usage of EM continues to vary significantly both between states and between state and federal systems.

Early EM research is limited to two studies. Coopriider and Kerby (1990) examined whether pretrial EM had an effect on FTA rates, rearrests, and technical violations in Lake County, IL. After comparing 334 non-EM defendants to 219 EM defendants, they found that those with EM were more likely to fail their supervision than those released without EM. However, this was primarily due to an increase in technical violations (7.76% vs. 1.20%), which was expected given that the use of EM creates more opportunity for such violations (tampering with equipment). The study found that differences in FTA rates (6.89% vs. 6.85%) were negligible and EM defendants were rearrested less often than non-EM defendants (3.65% vs. 4.79%). Notably, over 95% of defendants in both groups were not rearrested pretrial. The study also did not report on the nature of rearrests for either group, e.g., violent offenses versus non-violent ones. The overall high success rate for all defendants and the small improvement offered by EM (1.14%) with respect to rearrest rate may be read by some as undermining its potential value given implementation costs.

Cadigan's (1991) study also focused on FTA and rearrest rates, though his study did not include technical violations and instead compared outcomes for 168 EM federal defendants in 17 districts to their non-EM counterparts. Contrary to Coopriider and Kerby's findings, Cadigan found that EM defendants were more likely to have a FTA (5.4% vs. 3.0%) or rearrest (3.6% vs. 2.1% for felonies and 2.4% vs. 1.0% for misdemeanors) than non-EM defendants in the same district (Cadigan, 1991, pp. 29-30). As in Coopriider and Kerby's study, overall success rates in this study, both for court appearance and no rearrest were very high for both groups—94+% for both metrics for both EM and non-EM defendants. However, this study shows that EM defendants had worse pretrial success rates, as measured against both FTA and rearrest, though observed differences were small.

These findings should be interpreted with caution. When comparing the EM and non-EM groups, neither study adjusted for the severity of charges, criminal backgrounds, or any other factors that might influence pretrial outcomes. Both studies noted that there were significant differences between the two populations that had not been factored into the analysis (Cadigan, 1991, p. 30; Coopriider & Kerby, 1990, p. 33), and neither study explored whether their findings were statistically significant, which limits the significance of their findings. The contradictory findings of early studies, alongside these design limitations, suggest that there is little definitive evidence concerning the effects of pretrial EM from the early years of its implementation.

Recent Studies of Pretrial EM

Recognizing the limitations of earlier studies, two² recent studies sought to account for confounding factors between EM and non-EM defendants. In the first, researchers compared 310 EM defendants to 310 non-EM defendants in the Federal District of New Jersey. By controlling for demographic factors (age, sex, and race), PTRR risk assessment category, offense type, supervision length, and additional conditions of release, the researchers were able to better compare similar released individuals who either received EM conditions or did not. The researchers found that EM defendants were no more or less likely to have a FTA (both 3.2%) and

² Grommon, Rydberg, and Carter's (2017) study was not included, as it focused narrowly on domestic violence cases and did not disclose the jurisdiction where the study was conducted.

were less likely to be rearrested (6.8% vs. 10.6%). They were also more likely to commit a technical violation (44.8% vs. 32.6%) and less likely (27.7% vs. 44.8%) to commit a technical violation unrelated to the EM than non-EM defendants, though these findings were not statistically significant (Wolff et al., 2017, p. 12). The authors added that the record of technical violations did not distinguish which penalties led to remand, which limits our understanding of the technical violation findings. Notably this study also finds that the vast majority of defendants successfully complete pretrial without a FTA or rearrest regardless of whether or not EM is used as an intervention. Here, 97% of defendants—regardless of whether or not they had EM—had no FTA. Although 93% of defendants on EM had no rearrest, the vast majority of non-EM defendants (89%) also had no new charges during the pretrial period.

Using the same methodology (with two differences), Sainju et al. (2018) examined EM defendants at the county level in Santa Clara County, CA. Sainju et al. did not include a risk assessment tool, instead using FTAs, arrests, and incarcerations (Sainju et al., 2018, p. 6). In addition, all technical violations in their analysis resulted in the revocation of supervised release. Their analysis of 208 EM defendants and 208 non-EM defendants found that EM defendants were more likely to commit technical violations (16.82% vs. 4.32%) but were far less likely to have a FTA (8.17% vs. 22.59%) than those defendants who were not electronically monitored (Sainju et al., 2018). While the authors did find that EM defendants were slightly more likely to be rearrested (4.80% vs. 4.32%), this finding was not statistically significant. Although this study shows a significant positive impact of EM on FTA, again, the vast majority of EM and non-EM defendants (95+% of both groups) had no rearrest, and a majority of both groups had no FTAs.

The findings of these studies present a mixed picture. In the federal analysis, use of EM was associated with a decline in rearrests and no change in FTAs, whereas the Santa Clara analysis found EM was associated with a decline in FTAs and no change in rearrests. Both studies found EM defendants were more likely to commit technical violations, though federal EM defendants were less likely to commit these violations when violations associated with the technology (tampering) were removed. In addition, neither study examined how EM systems and processes contributed to these results, and it is not clear how the lack of a risk assessment tool in Sainju et al.'s study or the difference in what was considered a technical violation affected the final results.

Nonetheless, there is some indication between these two studies that the use of EM can have an effect upon pretrial outcomes. In each case, the use of EM was associated with a decrease in either FTA or rearrest rates, though this appears to come with the tradeoff increased technical violations. Furthermore, neither FTA nor rearrest rates increased with the use of EM in each study. Without knowing what elements of the federal or local court systems contributed to these results, it is impossible to generalize these findings to other jurisdictions. Future studies will need to examine what specific components of federal, state, and local programs contribute to these pretrial outcomes. And finally, all of the studies showed that the vast majority of defendants succeed pretrial with respect to court appearance and new criminal activity, and only the Santa Clara study found benefits of EM as to any metric to exceed 5% (8.17% versus 22.59%, there for FTAs). EM, whether using RF or GPS equipment, requires significant costs, including both the

monitoring and fitting of equipment and the staff required to implement the programs. To date, there has been little examination of these costs for either defendants or the court system. The fact that the vast majority of defendants succeed with respect to FTAs and rearrests may thus factor into a jurisdiction's cost benefit analysis with respect to implementing or continuing EM.

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