

Pretrial Location Monitoring

The two main pretrial outcomes that jurisdictions seek—and the only two outcomes that can legally be considered when deciding whether to detain or release a person pretrial—are to maximize court appearance and maximize community well-being and safety (i.e., minimize the likelihood of a person’s rearrest). This summary examines the current base of knowledge regarding the effectiveness of pretrial location monitoring in achieving these positive outcomes.

Technology-based location monitoring—often referred to as electronic monitoring or “EM”—monitors a person’s compliance with geographical conditions of release. Location monitoring became commercially available in 1984 and was initially used as an alternative to detention almost exclusively for people convicted of a crime. Since then, it has been increasingly applied to the pretrial population. The first jurisdiction widely known to have included location monitoring technology as part of its pretrial services was Lake County, Illinois, in 1986.¹ Four decades later, nearly three out of four jurisdictions across the country have location monitoring as an option at pretrial release hearings.²

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There are two approaches to location monitoring:³

- 1. Electronic monitoring (EM) alerts authorities when a person who is being monitored travels outside the permitted radius or enters an exclusionary zone, but it does not pinpoint a person’s exact location.⁴*
- 2. Global positioning system (GPS) monitoring continually tracks a person’s precise location.*

While there are many studies on location monitoring in the context of probation and parole supervision, relatively little research has been conducted at the pretrial stage. This summary reviews key findings from research on the impact of location monitoring on pretrial court appearance and arrest-free rates.

Key Finding #1: There Is No Clear Association Between Location Monitoring and Improved Pretrial Outcomes

The results of the existing studies are mixed: depending on the study, people on location monitoring are more, less, or equally likely to appear for court and/or remain law-abiding than people not on location monitoring.

One of the earliest evaluations of pretrial location monitoring was conducted in Lake County, Illinois. The study examined just over 550 people accused of a felony crime and found that, compared to a separate group of people who were released without location monitoring, those on location monitoring were less likely to fail to appear (41% vs. 59%) and less likely to be arrested (33% vs. 67%). The authors noted, however, that these percentages should be interpreted with caution as each was based on a small number of people. They also pointed out that over 80% of all people studied (i.e., both those on location monitoring and those not on location monitoring) were terminated from pretrial supervision successfully.⁵

Research conducted across 17 federal judicial districts on 168 people accused of a crime found different results. Compared to a separate group of people not on location monitoring, those on location monitoring were more likely to fail to appear (5.4% vs. 3.0%) and more likely to be arrested (3.6% vs. 2.1% for felonies; 2.4% vs. 1.0% for misdemeanors). As with the other study, these percentages are based on a small number of people and should be carefully interpreted. In addition, it should be noted that the success rate of the two outcomes was greater than 90% for both people on and not on location monitoring.⁶

A more recent and rigorous study of over 2,000 people accused of a crime in the federal district of New Jersey found that, when matched on important characteristics (i.e., demographics, offense type, immigration/citizenship status, pretrial supervision conditions, length of time on pretrial supervision, and likelihood of success as determined by a statistically validated assessment), people on location monitoring were equally as likely to appear for court as people not on location monitoring (96.8%) but were significantly less likely to be arrested (6.8% vs. 10.6%). Further analyses indicated that location monitoring was associated with significantly lower rates of arrest, specifically among people assessed as being statistically less likely to succeed pretrial.⁷

Recent research from California found that, for the 416 people accused of a crime who were matched on demographics, criminal background, current

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offense, and conditions of supervision, those on location monitoring were significantly more likely to appear for court than those not on location monitoring (91.8% vs. 77.4%) but were no more or less likely to be arrested (4.8% vs. 4.3%).⁸

Still other research has yielded different results. A federal study of over 550,000 people on pretrial release in 93 out of the 94 federal judicial districts revealed that, for people assessed as being statistically less likely to succeed pretrial, location monitoring made no difference. After controlling for specific conditions (i.e., current offense, criminal background, substance use, employment status, etc.), these people were no more or less likely to fail to appear or be arrested regardless of whether they were or were not released with the condition of location monitoring.⁹

Given the wide diversity of current research findings, differences in program processes, and research design limitations across studies, more rigorous research is needed to determine exactly what effects location monitoring has on pretrial outcomes.¹⁰

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Key Finding #2: Any Improvements as a Result of Location Monitoring Are Small

The studies that report reductions in failures to appear (FTA) or new arrests also demonstrate that the vast majority of people—regardless of whether or not they are on location monitoring—are likely to complete pretrial successfully.¹¹ For example, a study of federal courts in New Jersey reported that 97% of people both on location monitoring and not on location monitoring appeared for court as ordered, and 93% of those on location monitoring and 90% of those not on location monitoring had no new arrests.¹² These success rates suggest that any potential improvements in appearance or arrest rates associated with location monitoring are modest at best. This has important implications for the value of location monitoring when compared to its implementation costs (e.g., equipment costs, staff resources)¹³ and potential human consequences

(e.g., higher likelihood of committing a technical violation and being drawn deeper into the legal system; see Key Finding #3).¹⁴

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Key Finding #3: Location Monitoring Results in Increased Technical Violations

While the research is undecided about whether location monitoring increases, decreases, or has no effect at all on court appearance or law-abiding behavior, there is agreement that location monitoring results in increased rates (or incidents) of technical violations.¹⁵ For instance, in Lake County, Illinois, the “overwhelming majority” of technical violations were attributed to people on location monitoring rather than to people not on location monitoring (81% vs. 19%). Note, however, that most of these technical violations were related to the location monitoring itself, such as an unauthorized absence or tampering with equipment, rather than other issues, such as failing to contact pretrial services as required.¹⁶

Complementing these findings, the federal New Jersey study found that when technical violations associated with the location monitoring technology were removed from the equation, people on location monitoring were issued, on average, fewer technical violations as compared to their matched counterparts (27.7% vs. 32.6%).¹⁷ Similar results were found comparing GPS with non-GPS monitoring in particular.¹⁸ Before separating from analysis the technical violations that were specifically associated with location monitoring, people monitored via GPS were statistically more likely than their matched counterparts to be issued a technical violation. However, after removing those specific violations from the analysis, those monitored via GPS (throughout their entire time on supervision) were no more likely to receive a technical violation than statistically similar people who were not subject to GPS monitoring.¹⁹

In the California study mentioned earlier, people on location monitoring were more than three times as likely as those not on location monitoring to be revoked to jail for a technical violation. For these people, the second-most common reason for revocation was “device issues” (20% of revocations were due to the monitoring technology itself).²⁰ The authors discuss the possibility

that people are drawn deeper into the justice system as a result of location monitoring conditions when research suggests that they can be effectively supervised in the community with less restrictive conditions.²¹

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Key Finding #4: Location Monitoring Can Lead to Poorer Pretrial Outcomes Among People Assessed as Most Likely to Succeed

As found in the national pretrial study mentioned earlier, people who were assessed as being statistically most likely to succeed on pretrial release (i.e., according to a statistically validated assessment, they have a high likelihood of appearing in court, remaining on [not absconding from] pretrial monitoring, and/or remaining revocation-free because of a new arrest) were actually significantly more likely—twice as likely—to fail with location monitoring as a condition of release than if they were released without it. The authors found these results consistent with the “risk principle” for effective intervention (i.e., intervention resources should be prioritized for people who are assessed as being less likely to succeed pretrial).²²

According to a national study, people assessed as being statistically most likely to succeed on pretrial release are twice as likely to fail with location monitoring as a condition of release than if they are released without it.

Key Finding #5: Research Is Mixed Regarding the Use of GPS Monitoring in Domestic Violence Cases

Research suggests that GPS monitoring of domestic violence (DV) cases may have short- and/or long-term benefits related to arrest rates/community well-being and safety, the security of survivors, the needs of those who are accused, and a person’s compliance with pretrial release.

A study of DV cases conducted in three U.S. regions—the Midwest, West, and South—indicated that GPS monitoring had an impact on people involved in the justice system in both the short term (while they were enrolled in the program, i.e., before case disposition) and in the long term (after exiting the program, i.e., in the one-year period after case disposition or completion of sentence).²³ After controlling for specific conditions (i.e., demographics, offense type, number of prior arrests, etc.), the study found the following:

- In the Midwest, GPS versus non-GPS monitoring²⁴ was associated with a significantly higher likelihood (seven times higher) of arrest for *any offense* in the short term. In the long term, however, likelihood of arrest for *any offense* was statistically similar for both GPS and non-GPS monitoring, although GPS monitoring was associated with a significantly lower likelihood of arrest for another *DV offense* specifically. People monitored via GPS were only 69.2% as likely as people not on GPS monitoring to commit future domestic violence.
- In the West, GPS versus non-GPS monitoring²⁵ was associated with a significantly lower likelihood of arrest for any offense in the long term: people monitored via GPS were only 59.8% as likely as people not monitored via GPS to be arrested. No statistical models were run for short-term arrest or future DV offense outcomes.
- In the South, there were no statistically significant impacts of GPS versus non-GPS monitoring²⁶ on arrest outcomes, either in the short term or long term. According to the authors, this may be due to differences in research methodology. No statistical models were run for future DV offense outcomes.²⁷

The same study also surveyed survivors and people accused of domestic violence about the benefits and hardships associated with GPS monitoring. While some survivors reported feeling appreciative for the peace of mind they had knowing their estranged partner was being monitored via GPS, others described a greater sense of risk to their well-being. For example, they feared that their former partner might be more likely to retaliate because of the restrictions placed on them. People accused of domestic violence reported that GPS monitoring had both advantages (e.g., protection from false claims, added structure to their lives) and disadvantages (e.g., living with restrictions, managing stigma). In conclusion to the study in its entirety, the authors cautioned against using GPS monitoring—despite its potential benefits to recidivism rates, survivors, and people accused—without first ensuring that certain conditions are in place (e.g., GPS monitoring programs serve a particular purpose such as protecting survivors and enforcing restraining orders; there is a match between the attributes of the person accused and program details; there is a balance between survivor safety and due process for the person accused).

Another, more recent study found no evidence that GPS monitoring of domestic violence cases is associated with reductions in arrest for any offense or for another DV offense, although it does appear to impact whether people will appear for meetings with pretrial services staff. People monitored via GPS were only 69% as likely as people not being monitored via GPS to fail to appear for meetings.²⁸

Research suggests that GPS monitoring of domestic violence cases may have short- and/or long-term benefits related to arrest rates/community well-being and safety, the security of survivors, the needs of those who are accused, and their compliance with pretrial services.

Best Practice Recommendations

The aforementioned research literature and the professional practice standards that follow offer mixed guidance regarding pretrial location monitoring.

1. American Bar Association (ABA)

Standard 10-5.2(a) in *ABA Standards for Criminal Justice: Pretrial Release* explains conditions of release such that: “If a defendant is not released on personal recognizance or detained pretrial, the court should impose conditional release, including, in all cases, a condition that the defendant attend all court proceedings as ordered and not commit any criminal offense. In addition, the court should impose the least restrictive of release conditions necessary reasonably to ensure the defendant’s appearance in court, protect the safety of the community or any person, and to safeguard the integrity of the judicial process. The court may: (vi) require the defendant to be released on electronic monitoring...be placed under house arrest...as may be necessary reasonably to ensure attendance in court, prevent risk of crime and protect the community or any person during the pretrial period.”²⁹

2. The National Association of Pretrial Services Agencies (NAPSA)

Standard 3.2(b) in *Standards on Pretrial Release* explains: “At the initial bail hearing, the court should determine if there is probable cause to believe the defendant committed the crime charged before setting bail, ordering conditions of pretrial release or the defendant’s temporary detention” (p. 40). According to the commentary: “This Standard assumes that any condition other than an order for the defendant to make all scheduled court appearances and refrain from criminal behavior pretrial

would qualify as a 'significant restraint of liberty' within the meaning of the Gerstein decision. In particular, these Standards regard frequently-imposed conditions of pretrial supervision such as...electronic surveillance as significant restraints" (p. 40).³⁰

3. National Institute of Corrections (NIC)

A Framework for Pretrial Justice: Essential Elements of an Effective Pretrial System and Agency specifically does not cite location monitoring as an essential element of an effective pretrial system, as the literature is unclear about which supervision conditions best assure pretrial outcomes.³¹

Endnotes

1. Coopriders, K. W., & Kerby, J. (1990). A practical application of electronic monitoring at the pretrial stage. *Federal Probation*, 54(1), 28–35. <https://www.ncjrs.gov/pdffiles1/Digitization/123147NCJRS.pdf>; Hatton, R. (2019). *Research on the effectiveness of pretrial electronic monitoring*. <https://cjl.sog.unc.edu/files/2019/09/EM-Briefing-Paper-9.26.2019.pdf>; Maxfield, M. G., & Baumer, T. L. (1991). *Evaluation of pretrial home detention with electronic monitoring: Brief summary* (NCJRS No. 133526). <https://www.ncjrs.gov/pdffiles1/Digitization/133526NCJRS.pdf>.
2. Pretrial Justice Institute. (2019). *Scan of pretrial practices 2019*. <https://university.pretrial.org/HigherLogic/System/DownloadDocumentFile.ashx?DocumentFileKey=b2bd6339-8201-60f4-c262-a6317a409b82&forceDialog=0>.
3. For more complete definitions, see APPR's *Glossary of Pretrial Terms*: <https://cdn.filestackcontent.com/security=policy:eyJleHBpcnkjOjQwODAxNDY0MDAsImNhbGwiOlsicmVhZCIsImNvbniZlcnQiXX0=,signature:bf9d04ed62530c164d6fed395e4f74c04e606b95f4b72448ff976857a1e3a5f5/mb5L9vPLQ1SVqoH91pQy>.
4. The definition of “electronic monitoring” presented here also aligns with that for radio frequency monitoring.
5. Coopriders & Kerby, 1990.
6. Cadigan, T. P. (1991). Electronic monitoring in federal pretrial release. *Federal Probation*, 55(1), 26–30. <https://www.ncjrs.gov/pdffiles1/Digitization/133410NCJRS.pdf>.
7. Wolff, K. T., Dozier, C. A., Muller, J. P., Mowry, M., & Hutchinson, B. (2017). The impact of location monitoring among U.S. pretrial defendants in the District of New Jersey. *Federal Probation*, 81(3), 8–14. https://www.uscourts.gov/sites/default/files/81_3_2_0.pdf.
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9. VanNostrand, M., & Keebler, G. (2009). Pretrial risk assessment in the federal court. *Federal Probation*, 73(2). https://www.uscourts.gov/sites/default/files/73_2_1_0.pdf.
10. Limitations with research design and program processes include: (a) not adjusting for important factors such as demographic factors, actuarial pretrial assessment scores, severity of charges, criminal background, length of supervision, additional conditions of release, etc.; (b) examining differences in percentages as opposed to exploring statistical significance; (c) having little or no information about location monitoring systems (e.g., GPS vs. EM), processes, or programs; and (d) methodological concerns, such as the simultaneous use of other strategies to encourage success (e.g., use of court date notification systems, drug/mental health treatment referrals, etc., in addition to location monitoring).
11. Cadigan, 1991; Coopriders & Kerby, 1990; Sainju et al., 2018; Wolff et al., 2017; see also Key Finding #1.
12. Wolff et al., 2017.
13. Hatton, 2019.
14. To date, no cost–benefit analyses (that are publicly available, at least) have been conducted on the use of location monitoring pretrial. Analyses of location monitoring post-conviction generally suggest that it is a cost-effective supervision option (see, for example, the Washington State Institute for Public Policy: <https://www.wsipp.wa.gov/BenefitCost>).
15. Coopriders & Kerby, 1990; Sainju et al., 2018; Wolff et al., 2017.
16. Coopriders & Kerby, 1990.
17. This finding was not statistically significant but suggests an association between the monitoring technology itself and number of technical violations issued.
18. The non-GPS comparison group includes the full population of studied people, who were either not subject to location monitoring or were monitored via voice verification (phone) or radio frequency monitoring.
19. Wolff et al., 2017.
20. The most common reason for revocations was substance abuse (65%).
21. Sainju et al., 2018.
22. VanNostrand & Keebler, 2009; see also: Lowenkamp, C. T., Latessa, E. J., & Holsinger, A. M. (2006). The risk principle in action: What have we learned from 13,676 offenders and 97 correctional programs? *Crime & Delinquency*, 52(1), 77–93. https://mow.fd.org/sites/mow.fd.org/files/training/2015_CLE_Detention_and_Release/The%20Risk%20Principle%20in%20Action%20What%20Have%20We%20Learned%20article.pdf.
23. Erez, E., Ibarra, P. R., Bales, W. D., & Gur, O. M. (2012). *GPS monitoring technologies and domestic violence: An evaluation study*. <https://www.ncjrs.gov/pdffiles1/nij/grants/238910.pdf>.
24. In the Midwest, non-GPS cases included those people on radio frequency monitoring or those released on bond without supervision.
25. In the West, non-GPS cases included those people in jail or released on bond.
26. In the South, non-GPS cases included those people on radio frequency monitoring or those released on bond without supervision.
27. Given the comprehensive nature of this study, which includes comparing and contrasting different types of location monitoring and outcomes, just a few notable findings are presented here. People interested in the use of location monitoring for cases of domestic violence are encouraged to read the study in its entirety.
28. Grommon, E., Rydberg, J., & Carter, J. G. (2017). Does GPS supervision of intimate partner violence defendants reduce pretrial misconduct? Evidence from a quasi-experimental study. *Journal of Experimental Criminology*, 13(4), 483–504. <https://doi.org/10.1007/s11292-017-9304-4>.
29. American Bar Association. (2007). *ABA standards for criminal justice: Pretrial release* (3rd ed.). https://www.americanbar.org/groups/criminal_justice/publications/criminal_justice_section_archive/crimjust_standards_pretrialrelease_blk/.
30. National Association of Pretrial Services Agencies. (2020). *Standards on pretrial release: Revised 2020*. <https://drive.google.com/file/d/1edS2bltwfNR0ieGeu1A6qKLuTfzqop92/view>; for information on the Gerstein decision, see *Gerstein v. Pugh*, 420 U.S. 103.
31. Pilnik, L., Hankey, B., Simoni, E., Kennedy, S., Moore, L. J., & Sawyer, J. (2017). *A framework for pretrial justice: Essential elements of an effective pretrial system and agency* (NIC Accession No. 032831). National Institute of Corrections. <https://info.nicic.gov/nicrp/system/files/032831.pdf>.