

Electronic monitoring of offenders

Involves placing a tag around the ankle or wrist of an offender which, in combination with a receiving device, can verify their whereabouts at specified times.

First published

24 July 2017

Updated

15 January 2023

Effect scale	Quality of evidence				
	Effect Impact on crime	Mechanism How it works	Moderator Where it works	Implementation How to do it	Economic cost What it costs
 Mixed findings	 Very strong	 Moderate	 Very strong	 Strong	 Moderate

Focus of the intervention

Electronic monitoring (EM) of offenders involves placing a tag around the ankle or wrist of an offender which, in combination with a receiving device, can verify their whereabouts at specified times. This allows the monitoring and enforcement of curfews between specific times or in specific locations, meaning the offender can be released into the community rather than serving time in a correctional institution.

EM devices:

- use either radio frequency (RF) or global positioning system (GPS)
- can send information in real time or lagged

- can be applied at any time in the criminal justice system from pre-trial to post-prison release, including as an alternative sentence to prison or parole without EM

EM has been used on a variety of offenders and suspects, including those who are high risk, those who are suspected or convicted sex offenders, and suspected or convicted perpetrators of domestic violence.

This narrative is based on two systematic reviews. Review one covered 33 studies, 17 of which had sufficient information to carry out a meta-analysis. The majority of the primary studies were carried out in the USA, with the focus being on EM. Review two covered 11 studies, which had sufficient information to carry out a meta-analysis. Studies were carried out in the USA, Canada, Argentina, England, France and Sweden. Review two focuses on home confinement – most of which is EM, but also two studies that focus on house arrest and curfews without EM.

Review one contributes to all sections in this narrative while review two contributes to the Mechanism and Moderator sections.

Effect – how effective is it?

Review one

There is some evidence that electronic monitoring has either increased or decreased crime, but overall it has not had a statistically significant effect on crime.

The review included 33 studies, 17 of which contained enough information for a meta-analysis. Some studies contained information from multiple geographical areas which allowed multiple effect sizes per study. A meta-analysis showed a non-significant decrease in reoffending among participants who were put on EM. Two of the 17 studies showed statistically significant increases in reoffending among those participants on EM, while four studies showed statistically significant decreases in reoffending. All other studies had non-significant results.

When assessing the studies by outcome, the seven studies that used reconviction or re-imprisonment as the outcome measure showed a statistically significant reduction in these outcomes for participants on EM, compared to the control groups. Studies using rearrest or parole violations as outcome measures showed no statistically significant difference.

How strong is the evidence?

Review one was sufficiently systematic that most forms of bias that could influence the study conclusions can be ruled out.

It had an effective search strategy and found both published and grey literature. The studies were assessed by multiple authors to ensure accuracy of information retrieval and studies with different outcomes were analysed separately. Issues including dependency and the possible effect of outliers were controlled for within the analysis, increasing the confidence in the findings.

Mechanism – how does it work?

The studies within both reviews identified a number of situational and behavioural mechanisms by which EM may decrease crime. However, there was not enough information in the original studies to test these mechanisms statistically.

The situational mechanisms identified included increasing the risk of being caught (re)offending due to an increase in monitoring of the participant wearing the EM device. This allows the authorities to be alerted if the individual is either not at a specified location either:

- when they are expected to be (such as at home overnight)
- if they have entered an exclusion zone (such as a playground if the offender is a sex offender)

By keeping a record of the participant's location at certain times of the day, they are monitored more regularly than home visits by parole or probation officers. EM may also increase the effort required to (re)offend if they wish to do so undetected, as they may have to remove the device if they are not to be tracked and discovered. EM may remove the excuses for (re)offending, by setting out strict and enforceable conditions of participants' time on the EM programme, and by the device being a constant present reminder to the participant of those conditions. Finally, EM may reduce the provocations to (re)offend by reducing peer pressure since the participant is not allowed to spend time with certain individuals or enter certain areas that have criminogenic influences.

The behavioural mechanisms identified included increasing the amount of family contact for participants on EM, since they are often allowed to remain at home rather than being forcibly separated from their family by imprisonment. EM also usually allows or even requires participants to be employed, giving them a sense of responsibility and an income that may help deter them from

criminal activity. EM can be used to increase access to therapy by enforcing these visits as part of the programme for participants, which may help those who would benefit from such activities. EM programmes can also include a focus on abstinence from drugs or alcohol through random or routine testing. This can again lead to better behaviour and reduce provocations for committing crime. Finally, EM can lead to participants having no (or less) exposure to the prison environment – which is known to expose individuals to criminogenic peers and influences – while removing the positive aspects of their home environment such as family contact and the possibility of employment.

Moderators – in which contexts does it work best?

A number of potential moderators were identified within review one, some of which were able to be tested statistically. There were no statistically significant differences between the effect sizes for those studies conducted in the USA compared to Canada, and there was no difference between those studies which used RF technology and those which used GPS. The dosage and duration of EM was not found to make a difference, nor was the fact that EM was a standalone intervention or part of a package of interventions.

The type of offender on EM in review one was found to make a difference in one particular case. The three studies that had sex offenders as their sample showed a statistically significant decrease in crime compared to control groups who did not have EM. There was no statistically significant difference in studies that used what they deemed 'high risk' offenders – a broader definition than sex offenders alone. Further, three studies found that when offenders were put on EM instead of prison – as compared to when they were put on EM after prison – there was a statistically significant reduction in reoffending.

Review two found that studies carried out in Europe showed a greater reduction in reconviction than those in North America. Studies outside of the USA showed a greater reduction in re-imprisonment than those from the USA.

Implementation – what can be said about implementing this initiative?

Review one identified an array of factors that affected the implementation of EM programmes. These included technological issues that were identified as being impediments to successful implementation, such as:

- equipment malfunction
- loss of signal or power
- battery failure
- lack of communication between various databases
- inadequate broadband capacity

The review also mentioned staffing issues, including the fact that staff involved in running an EM programme included personnel from a variety of agencies such as prison, probation, the police, monitoring companies and criminal justice agencies. Communication between staff at these agencies was identified as being pivotal in the implementation and success of EM.

Programme administration was also considered important. Proper care and attention at the planning and design stage was identified as being essential for the success of any EM programme, with objectives, guidelines and expectations needing to be developed in advance of implementation. Information, communication and consent issues related to briefings provided to offenders and family members – as well as information exchange between monitoring companies and offender managers – were all identified by the review as being important for proper implementation. Finally, prompt and swift response to a breach of the conditions of the EM programme was important to ensure that offenders kept to their curfew times if they did not wish to return to prison. The review identified that the effect was largely dependent on the agency or agencies responsible for overseeing and managing compliance and responding to breaches.

The review concludes that the successful implementation of an EM programme requires good communication between the various agencies responsible for implementation, as well as clear programme design, administrative responsibilities and communication strategies laid out from the outset. There must also be the technological capabilities to set up and run the programme as required.

Economic considerations – how much might it cost?

While there was not enough information to conduct a cost-benefit analysis, review one identified a lot of information regarding the costs of various EM programmes and the potential savings when compared to imprisonment. The cost of the EM programme varies depending upon the type of technology employed. RF systems cost less than GPS systems and passive technology is less expensive than active technology, which reports in real time. Both types of technology are cheaper than imprisonment, however. Nevertheless, EM is more expensive than traditional parole or probation which does not include this type of monitoring.

A number of costs must be taken into account when assessing the price of an EM programme, including:

- equipment the participant wears (the tag itself)
- the receiver box located in their home
- the charging equipment
- the transmitter they carry with them

There are also costs associated with the:

- staff required for the programme (including training and holiday time)
- equipment and property rental for the monitoring centre
- potential costs to the police force if they are expected to respond to a breach in the conditions of the EM programme by the participant

However, some programmes in the USA can require the participant to contribute towards the costs of the programme. This often uses a sliding scale, which is relative to the income level of that participant. This is not currently a component of programmes in Europe however.

General considerations

- The studies include different measures of crime, including reconviction and re-imprisonment, rearrest and parole violations. These have been analysed separately.
- While this report was primarily concerned with crime as an outcome of EM, it may be introduced for many other reasons including reduction of costs, reducing overcrowding in prisons or rehabilitation.
- As a result, the success or otherwise of EM depends on the specific outcome that authorities are aiming to achieve.

Summary

There is some evidence that EM has either increased or decreased crime, but overall it has not had a statistically significant effect on crime in review one. A statistically significant decrease in crime is, however, seen among sex offenders who are placed on EM compared to those who are not monitored electronically.

EM may increase the risk of being caught and the effort required to offend, but also allows the participant to spend more time with family, in employment and less (or no) time in prison exposed to criminogenic influences.

EM programmes must ensure clear programme design and responsibilities, as well as good communication among all those involved and ensure the correct technological capabilities are available.

Although some technologies are more expensive than others, EM is always a cheaper alternative to prison, although it is more expensive than traditional parole or probation without this kind of monitoring.

Reviews

Review one

Quality of evidence			
Mechanism How it works	Moderator Where it works	Implementation How to do it	Economic cost What it costs
 Moderate	 Very strong	 Strong	 Moderate

Reference

-

Belur J and others. (2017). 'A Systematic Review of the Effectiveness of the Electronic Monitoring of Offenders'. What Works Centre for Crime Reduction, University College London.

Review two

Quality of evidence			
Mechanism How it works	Moderator Where it works	Implementation How to do it	Economic cost What it costs
 Low	 Moderate	No information	No information

Reference

- Bouchard J and Wong JS. (2018). 'The new panopticon? Examining the effect of home confinement on criminal recidivism'. *Victims & Offenders*, 13(5), pp 589–608.

Summary prepared by

This narrative was prepared by the College of Policing and was co-funded by the College of Policing and the Economic and Social Research Council (ESRC). ESRC grant title: 'University Consortium for Evidence-Based Crime Reduction'. Grant reference: ES/L007223/1.

[Return to the toolkit](#)

Tags

- [Crime reduction](#)