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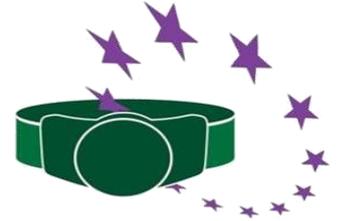
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Creativity and Effectiveness in the use of electronic monitoring: a case study of five jurisdictions

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May 2016



Co-funded by the Criminal Justice Programme of the European Union. This document has been produced with the financial support of the Criminal Justice Programme of the European Union. The contents are the sole responsibility of the author(s) and can in no way be taken to reflect the views of the European Commission.

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Acknowledgements

Many individuals contributed to the project and we cannot acknowledge them all. We would, however, like to acknowledge the contributions of the project manager, Sophia Verhaeghe and the researchers who worked on the project: Ella Holdsworth, Matthijs van der Kooij, Stephanie Rap, Marijke Roosen, Christoph Thiele and Judith Treig. Invaluable support was also provided by Rachel Evans in Leeds. We are indebted to our Advisory Board for its advice and guidance throughout the project. The members of our Board were: Andy Bruce, Clive Beard, Willem van der Brugge, Silke Eilzer, Mark Griffiths, Antonia Le Roy, Pedro Ferreira Marum, Mike Nellis, Sandra Pascariello, Adrian Scott, and Michiel van der Veen. Finally we would like to thank all the interviewees and individuals involved in EM who participated and facilitated the research. Any errors and omissions are those of the research team.

Executive summary

The use of electronic monitoring (EM) has grown rapidly in the European Union and elsewhere and is likely to continue to do so but knowledge about its operation and its potential to provide a humane, credible and effective alternative to imprisonment is limited. The research on which this report is based was carried out in five jurisdictions in Europe (Belgium, England and Wales, Germany, the Netherlands and Scotland) which deploy EM in different ways and to varying extents facilitating comparative analysis. The research is the first empirical comparative study of EM. Its aim was to compare the law, policy and practices in the five jurisdictions focussing particularly on EM's capacity to act as an alternative to custody and to identify best practices to enhance its effectiveness and ensure that EM is used legally, creatively, ethically and humanely.

The research included an extensive literature review alongside observations of all aspects of the EM process and 191 interviews with policy-makers and practitioners involved in the provision of EM. The research was carried out between the autumn of 2014 and early 2016. The main findings were:

- EM is used extensively, for diverse purposes and in many different ways across the five jurisdictions.
- Less extensive use of EM is associated with long-term reductions in prison populations and reducing imprisonment rates. By contrast, high prison populations are associated with high use of EM.
- The extent to which the size of the prison population is viewed as problematic is an important determinant of EM use.
- EM has universal appeal because it fits or can be made to fit many purposes.
- Creative use of EM is limited with isolated examples of innovative practices.
- Radio-frequency and GPS technologies have complementary and distinct advantages and uses.
- Private sector involvement in EM is associated with less integration into broader criminal justice structures.
- The greater the involvement of probation in EM the more discretionary decision-making takes place.
- Policies relating to diversity do not generally exist or do not cover all aspects of diversity.
- The limited or non-existent availability of data relating to EM hampers research and restricts judicial and public understanding of EM.

It is recommended that consideration should be given to:

- the aims of EM to ensure that it is used according to the principles of proportionality and necessity, in the least intrusive way and incorporating support so that it positively influences individuals and assists them to lead meaningful lives.
- implementing mechanisms to improve lines of communication and joint working between agencies.
- the provision of alternative addresses for monitored individuals.
- ways to better tailor curfew hours to the circumstances of monitored individuals and offences.

- implementing progression and exit strategies including mechanisms to end EM earlier than planned when individuals are compliant.
- policies and procedures relating to changes in circumstances to ensure a consistent and flexible graduated response.
- procedures to ensure that informed consent is received from co-habitees independently and prior to the imposition of EM.
- mechanisms to provide 24/7 support to monitored individuals.
- breach policies to ensure a consistent, proportionate approach incorporating a graduated response to violations.
- measures are taken to ensure consistent and fair treatment of individuals from diverse populations.
- measures to ensure effective yet restricted data sharing between agencies with regard to data protection protocols.
- policies and procedures to ensure staff safety including more effective communication of risk information and training in risk management.

1. Introduction

Electronic monitoring (EM) is a relatively new tool of criminal justice. It was first used in Europe in the late 1980s in the UK. After which its deployment spread so that by the time this project was conceived most European jurisdictions already used it or were in the process of introducing it. During the duration of the project (2014-16), the deployment of EM was growing both in terms of numbers and modalities in many European jurisdictions. Uniquely amongst community sanctions and measures, EM is used at all stages of the criminal justice process: pre-trial, as a sentence, as early release from prison and on completion of a prison sentence potentially providing the only universal mechanism for reducing prison populations. EM is a flexible tool, which may be used in many ways in the criminal justice context. For example, it can be used as a standalone measure or alongside other requirements or conditions and EM regimes are infinitely flexible so monitoring periods may be tailored to the intensity required and changed during the lifetime of orders. A particular focus of this project was to explore the creative ways in which EM was already used and the potential for it to be used more creatively in the future.

EM's use in criminal justice settings is controversial and raises ethical and practical concerns. The involvement of the private sector to a greater or lesser extent is one of the most controversial aspects of EM. Other concerns centre around, *inter alia*: the surveillant nature of EM and its consequences for privacy; whether EM results in 'net-widening' thereby supplementing rather than replacing the use of imprisonment; the extent to which EM stigmatises individuals; whether it provides an effective tool to control individuals' behaviour; and its impact on families and other co-habitees.

EM monitors the location of individuals via an electronic ankle tag. Radio-frequency technology is the most commonly used technology. It is used mainly to monitor curfew requirements i.e. whether individuals remain in a confined space (usually their homes) during specified times. GPS technologies track the movements of individuals either in real time or retrospectively. They are most often used to monitor geographic exclusion zones but are also able to monitor inclusion zones. At the time of the research, GPS technologies were being deployed increasingly. Neither of the technologies currently in use are able to prevent monitored individuals absconding or offending because the tags can be removed. However, EM provides an early warning system that individuals have breached the restrictions imposed on them and concrete evidence of breach, thereby increasing the chances of getting caught and the potential deterrent effect of EM.

Despite EMs growing significance in the penal landscape research and academic commentary remain sparse. Most contributions are not based on empirical research instead describing the application of EM and/or discussing whether EM is a desirable, meaningful or useful form of punishment (see for example, DeMichele, 2014; Lilly, 2006; Mair, 2006; Nellis 2013; 2009; 2006). Questions relating to surveillance and ethics are also prominent in the academic discourse (see for example, Nellis, 2013). Most of these commentaries are based on single jurisdictions. A number of useful international compilations have been published which bring together commentaries from several jurisdictions. These provide in-depth descriptions and analysis of how EM is employed in single jurisdictions enabling common themes to be drawn together (see Nellis, 2014; Nellis et al., 2013). In addition, cross-jurisdictional surveys have been undertaken regularly by the Confederation of European Probation (CEP)

(Beumer and Kylstad Øster, 2016; Nellis et al., 2013; Pinto and Nellis, 2011) and the Council of Europe (Nellis, 2015). Statistics have recently begun to be collated in Europe by the Council of Europe Annual Penal Statistics (SPACE) but these lack accuracy and specificity (Council of Europe, 2015a; 2015b). Graham and McIvor's (2015) international literature review usefully brings together the available international evidence on EM.

In-depth empirical research has been undertaken in a small number of European countries but these focus on single countries (see Vanhaelemeesch et al., 2013 ; Beyens et al., 2007; in Belgium and Hucklesby; 2011; 2009a; 2008 in England and Wales). Similarly, research has been carried out in countries outside of Europe including the US (see for example, Finn and Muirhead-Steves, 2002; Gainey and Payne, 2000; Renzema, 2013; Renzema and Mayo-Wilson, 2005) New Zealand (Gibbs, 2004, Gibbs and King, 2003), Israel (Sosham et al., 2014; 2013) and Argentina (Di Tella and Schargrotsky, 2013) on different aspects of EM. These studies have begun to provide an evidence base but tend to be relatively small scale and focussed on a narrow range of issues. Knowledge about the effectiveness of EM in terms of its impact on compliance and offending and prison populations is especially limited. US research provides some evidence of a suppression effect on offending whilst individuals are being monitored (; Bales et al., 2010; Padgett et al., 2006). There is little evidence of a post-EM effect on offending but several studies have indicated that there may be longer term impacts of EM although this varies for different groups (Renzema 2013; Burrell and Gable, 2008; Finn and Muirhead-Steves, 2002; Bonta et al., 2000). However, drawing general conclusions from these studies and assuming that they apply to countries other than where the research was conducted is ill-advised given that EM has different aims, purposes and target groups within and between jurisdictions. It is often also impossible to isolate the effects of EM from other supervision or support individuals may be receiving from the criminal justice process and beyond.

Very little comparative research has been undertaken to-date. Nellis and Bungerfeldt (2013) explore developments in EM-schemes in England and Wales and Sweden, pointing to differences in private sector involvement and the way EM is integrated with probation, both at the institutional level (structures of service delivery) and at the practical level (individual supervision). Two special issues of journals have focussed on EM from an international and comparative perspective (Nellis and Martinovic, 2016; Erez and Ibarra, 2014). Neither of these publications aimed to systemically compare the deployment of EM in the different jurisdictions nor were the contributions based exclusively on empirical research.

The project discussed in this report is the first in-depth empirical comparative analysis of EM. It aimed to systematically compare the use and operation of EM in different European jurisdictions based on empirical evidence. It was undertaken in five jurisdictions with varied experiences of EM. It included jurisdictions in which EM is relatively well established and widely used (Belgium, England and Wales and Scotland), where it is well-established, widely available but used cautiously (the Netherlands) and where it is less widely deployed (Germany). The participating jurisdictions vary in terms of how EM is used and what type of EM is deployed for which target groups. For example, Belgium, England and Wales and the Netherlands use EM pre-trial with Belgium using GPS technology, England and Wales uses RF

technology and the Netherlands using both; Belgium and the Netherlands use EM as replacement for prison sentences; and Germany’s federal scheme deploys EM post-release. The five jurisdictions also differ with respect to whether EM is linked with probation supervision and/or other forms of support or rehabilitative programmes. The varied use between the jurisdictions enabled comparative research to be undertaken to examine the similarities and differences between jurisdictions and how they might inform what works in terms of providing a credible and workable alternative to imprisonment.

The aim of the project was to compare the operation of EM for adults in five jurisdictions in order to examine its use at all stages of the criminal justice process and its effectiveness in terms of providing an effective and humane alternative to custody and reducing prison populations. In so doing it described and explained the legal and policy context in which EM operates in each jurisdiction; identified the ways in which EM is employed in each jurisdiction; identified and analysed European frameworks, rules and decisions relevant to EM; explored the operation of EM in each jurisdiction; compared practices and outcomes between jurisdictions; and identified best practice in relation to the implementation of EM.

The first phase of the project involved a comprehensive analysis of law and policy and a literature review in each jurisdiction. This was followed by empirical research including observations and interviews. Observations of the whole EM process including preparations for fitting EM equipment, the installation of the equipment, the monitoring process, deinstallations of equipment and breach procedures were undertaken. Observations were carried out in monitoring centres, with field/mobile teams and where applicable with probation staff. Interviews were conducted with a wide range of individuals in each jurisdiction. Interview participants included government ministers, policy-makers, practitioners, EM providers and sentencers, varying between jurisdictions depending on how EM was organised. The number of observations and interviews conducted in each jurisdiction is presented in Table 1. A total of 191 interviews were undertaken.

Table 1 Number of observations and interviews		
	Observations (days)	Interviews
Belgium	19	29
England and Wales	18	68
Germany	11	30
Netherlands	18	34
Scotland	9	30
Total	75	191

The report provides a comprehensive overview of the findings of the research. A summary of this report and reports covering each jurisdiction are available at: <http://emeu.leeds.ac.uk/>. The first sections of the report examine how, and the extent to which, EM is used in each of the jurisdictions. It then goes to explore the objectives of EM, how well it is embedded into the criminal justice system and information exchange before turning its attention to examining the creative use of EM and the

monitoring process. The final sections cover issues related to compliance and breach, data relating to EM, diversity issues and staffing before ending by considering each jurisdiction's compliance with the Council of Europe recommendation on EM (Recommendation CM/Rec (2014) 4) and the possible future of EM.

2. Electronic monitoring modalities

Table 2 summarises the applications of EM in the jurisdictions at the beginning of 2016. EM is used at all three stages of the criminal justice process but not in every jurisdiction. All jurisdictions use multiple modalities of EM. Table 2 demonstrates that all jurisdictions used Radio Frequency (RF) technology and Scotland is the only jurisdiction which, at the time of writing (Spring 2016), does not use GPS applications, although it is under consideration. EM can be combined with probation supervision in all jurisdictions but in Belgium, England and Wales and Scotland it is also used as a standalone measure.

Table 2 Electronic monitoring modalities										
	Belgium		England & Wales		Germany		The Netherlands		Scotland	
	RF	GPS	RF	GPS	RF	GPS	RF	GPS	RF	GPS
Pre-trial		✓	✓		✓		✓	✓		
Court order/sentence	✓		✓		✓		✓	✓	✓	
Execution/alternative to imprisonment	✓						✓	✓		
Early release			✓	✓	✓		✓	✓	✓	
Post release	✓		✓	✓		✓	✓	✓	✓	
Alcohol monitoring			✓ Pilot				✓ Pilot			
Victim's programme				✓ Pilot						

3. Electronic monitoring caseloads

One of the largest differences between jurisdictions is the scale of use of EM. Unfortunately, directly comparable data are not available but Table 3 provides information on caseloads in each jurisdiction. It shows that EM is used to a much greater extent in England and Wales than in any of the other four jurisdictions with a daily population of around 11,700. This is nearly five times the size of the next highest user, Belgium, which has around 2000 individuals on EM on any given day. Germany is the lowest user of EM with a daily caseload of just over 100 monitored individuals. The number of individuals monitored in the course of a year is greater for the jurisdictions where these data are available. Table 3 shows that around 6000 individuals were monitored in Belgium over a year compared with nearly 3000 in Scotland and 1500 in the Netherlands.

The extent to which EM is used has important implications for the way in which it is organised and for the resources it requires to function. Managing large numbers requires more resources and more staff, although economies of scale are likely to be realised, and results in more routinized practices. This project also suggests that high volumes and/or increasing numbers overtime reduces probation services' involvement in EM.

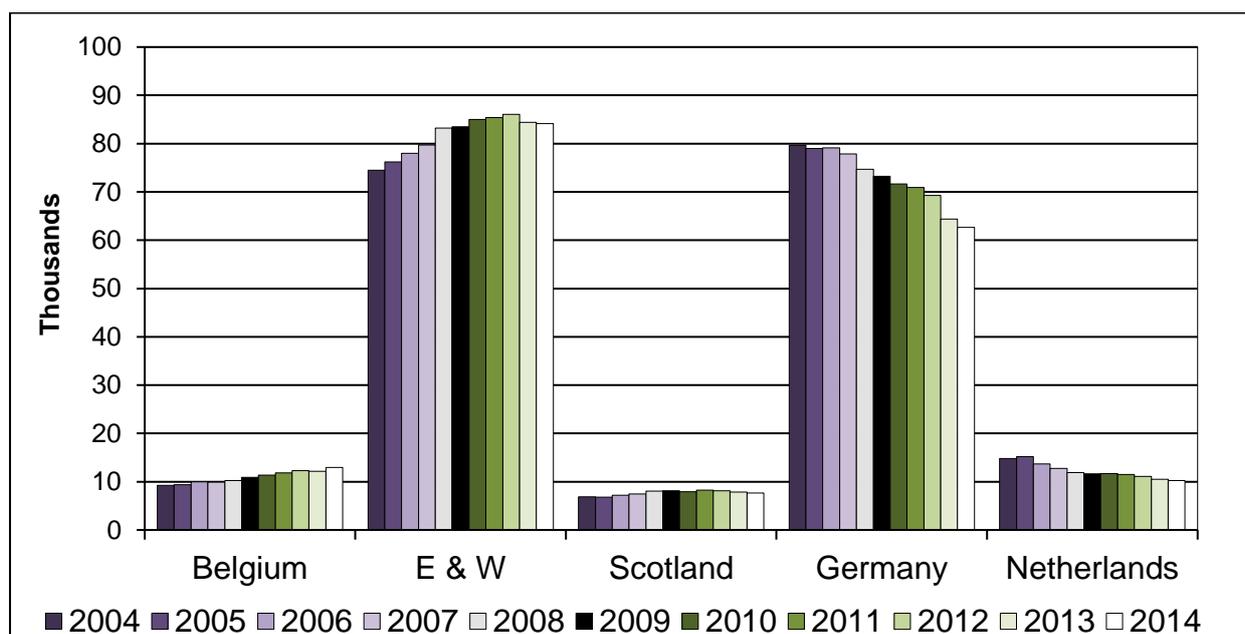
	Belgium		England & Wales		Germany		The Netherlands		Scotland	
	Day ¹	Year ²	Day ³	Year ⁴	Day ⁵	Year ⁶	Day ⁷	Year ⁸	Day ⁹	Year ¹⁰
Pre-trial	73		3617				48			
Court order/sentence	228		5917		43		139			1221
Post-custodial	1666		2208		73		136			1672
Total	1967	6049	11742	N/A	113	N/A	367	1562	808	2893

1. 30.05.14; 2. 2015; 3. 30.11.2015; 4. 2013; 5. 11.08.2015; 6. 2013; 7. 15.03.2014; 8. 2013; 9. 2014; 10. 11.06.2015.

4. Criminal justice context

The wider context in which EM operates influences its use and the ways in which it is implemented. Less extensive use is associated with long-term reductions in prison populations and lower imprisonment rates. Germany and the Netherlands with imprisonment rates of 76 and 69 per 100,000 respectively (in 2014) have significantly lower imprisonment rates than England and Wales, Scotland and Belgium (148, 139 and 105 per 100,000 population respectively) (Institute for Criminal Policy Research, 2016).

Figure 1 Prison populations 2004-2014

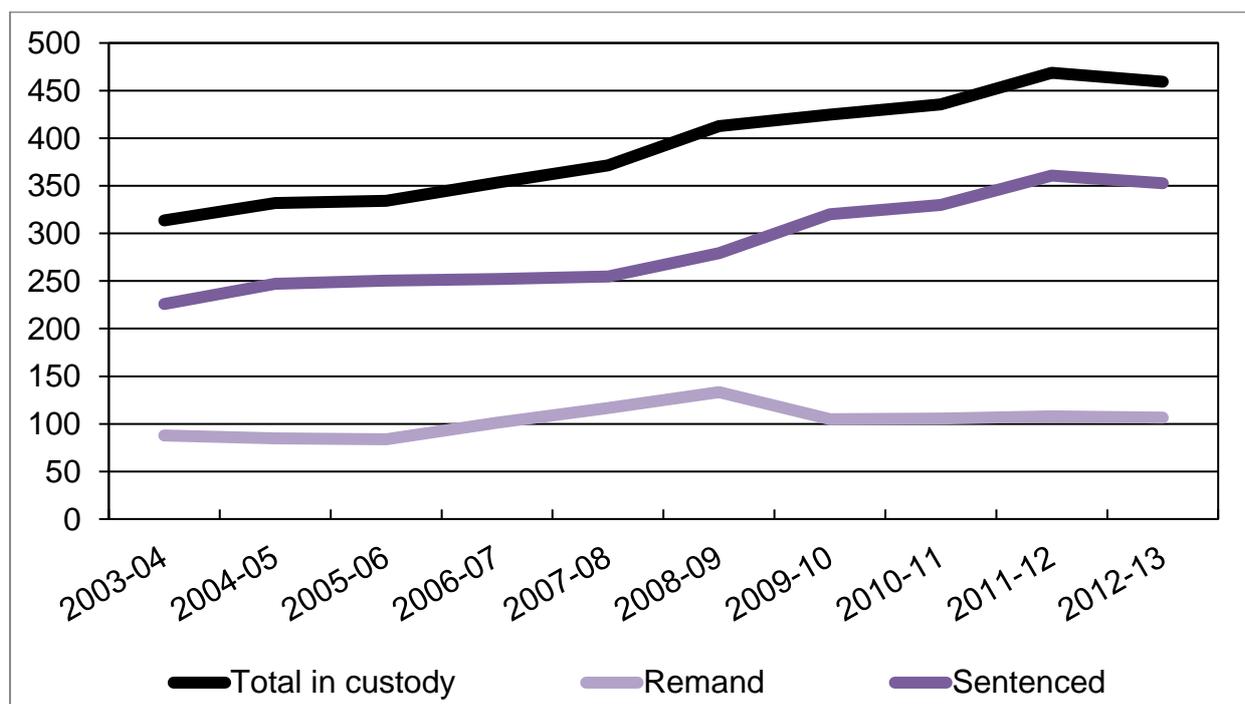


Source: Council of Europe, SPACE 1: 2012a; 2015a

However, the extent to which the size of the prison population as a whole, or particular sections of it, is viewed as problematic appears to be a potentially more important determinant of the use of EM than imprisonment rates. Consequently whether EM is viewed as a mechanism to reduce the use of imprisonment either through decreasing the number of defendants or offenders sent there or reducing the time they spend incarcerated generally or for specific populations is associated with the extent to which EM is utilised. In Belgium and England and Wales, for example, there are considerably more individuals on EM at any given time than in the other three jurisdictions. As Figure 1 shows, their prison populations are high, rising over recent years resulting in capacity issues in the prison system. By contrast, in Germany and the Netherlands, prison populations have decreased over the last 10 years (see Figure 1) resulting in sufficient prison capacity (and in the Netherlands, over-capacity) and EM is not used as extensively.

In Scotland concerns about the overuse of imprisonment have focused on the female population and there are plans to increase the use of EM for this group. As Figure 2 shows the female prison population has risen by 70 per cent between 2003/4 and 2012/13.

Figure 2 Females in prison in Scotland 2003/4 to 2012/13



Source: Scottish Government, 2015: Table 1.

England and Wales has by far the highest number of individuals on EM at any one time but its use relative to the size of the prison population is not so stark. Data are not directly comparable so figures need to be used as indicators, but when EM use is viewed as a proportion of the prison population,¹ England and Wales (14 per cent), Belgium (13 per cent) and Scotland (11 per cent) use EM considerably more than the Netherlands (4 per cent) and Germany (<1 per cent in 2014). EM also accounts for a

¹ Prison population figures for 2014 Belgium, Germany and the Netherlands and 2013 England and Wales and Scotland (Council of Europe, 2015a).

small number of those under supervision of probation services in the community after sentence. European statistics suggest that EM accounts for 4.4 per cent of those under supervision in Belgium compared with 1 per cent in the Netherlands (Council of Europe, 2012b: 1.3). These statistics do not include individuals on EM pre-trial so underestimate the total number being monitored. Similarly, the published statistics for England and Wales are significant underestimates because they do not include the high number of individuals monitored on standalone orders which do not involve probation supervision.

The relative use of EM and imprisonment raises complex questions about EM's ability to reduce populations in prison and whether it plays a role in expanding rather than contracting criminal justice interventions. The jurisdictions in this study suggest that high use of imprisonment is linked with high use of EM but the nature of the relationship is not clear. There is some evidence from Belgium that EM may play a role in reducing prison populations. Since 2013, when changes to EM were introduced to increase its use in Belgium, the prison population has fallen. Similarly, when the prison remand population in England and Wales might have been expected to rise because of legislative changes it has stayed stable with one potential factor being the increased use of EM pre-trial (Hucklesby, 2009b). Whether there is a direct causal link or a correlation between use of EM and imprisonment is impossible to prove or disprove.

High volumes and/or increasing numbers on EM overtime are associated with a reduction in the involvement of the probation service in EM. In England and Wales the lack of credibility of probation services has contributed to the policy drive to increase the use of EM. Concerns about the work of probation services have resulted in a search for alternative community sanctions which do not require their involvement. In Belgium, where there is less and less involvement of Justice Assistants (probation staff) in EM, the credibility of the Houses of Justice does not appear to have contributed to this trend or indeed to the increased use of EM.

The context in Germany is different in a number of key respects which has contributed to its low use of EM. One, stringent data protection rules and the considerable bureaucratic hurdles they place on the day to day operation of EM limit its use. Whilst other jurisdictions are mindful of data protection requirements, they do not dictate practice to the same extent. Two, the federal structure of Germany requires all states to agree to any countrywide use of EM and the political will to use EM in several states does not appear to exist. Three, the constitutional principle of proportionality requires the use of more intensive interventions to be justified against less restrictive measures. Consequently, regular probation, combined with directives and obligations where necessary, is viewed as being effective for most offenders. EM is only used in cases where regular probation or intensive probation alone is not sufficient.

In three jurisdictions (England and Wales, Germany and the Netherlands) EM has been used to monitor specific groups of high risk offenders who have high public profiles in order to address the perceived and actual threats to public safety. GPS technologies are used to monitor (mainly) sex offenders as part of a package of intensive supervision by probation staff or multi-agency teams. In several jurisdictions, most notably Germany, EM is used as a preventative measure and may extend beyond the end of the formal sentence period. Individuals are released from a specific form of preventive detention (*Sicherungsverwahrung*) which follows at the end of a determinate sentence. Using tracking technologies with individuals linked to terrorism

and radicalisation was under active consideration in several jurisdictions and used in at least one (England and Wales).

In England and Wales, concerns about the speed of, and restrictions on, the process to procure new EM contracts was one of the drivers for police forces utilising GPS tracking technologies outside of government contracts primarily under the auspices of Integrated Offender Management Schemes (IOM) (Senior et al., 2011). The target group for these schemes is prolific offenders with long records of acquisitive offending. In the other jurisdictions, the police are not involved in the use of EM other than peripherally as the agency that is tasked with arresting individuals who have breached their orders.

5. Technologies

EM is a tool which can be used in many ways to support the purposes of criminal justice systems. The ways in which it is implemented are dictated by the goals of the system in which it operates. However, the available technology, its capabilities and credibility provide the parameters for its deployment.

Radio Frequency (RF) technology, providing static location monitoring in prescribed zones, is used more extensively than GPS tracking technologies in four of the five jurisdictions. In most jurisdictions RF technology is used to monitor curfews or home detention. In Germany (Hesse), however, it is also used to monitor whether individuals leave their address to take part in structured activities which form part of their probation programme. Across the jurisdictions, interviewees were generally positive about RF technology although some police officers and Police and Crime Commissioners in England and Wales were critical of its limitations i.e. that it is only capable of monitoring the presence of individuals at an address. Most interviewees were also clear that RF technology would and should continue to be used for the foreseeable future because it was cheap, simple to use and understand and was tried and tested.

GPS tracking technologies are utilised to a greater or lesser extent in all jurisdictions except Scotland. In two jurisdictions (England and Wales and Germany), at the time of the research their use was confined to a small number of high-risk offenders and in England and Wales to small number of prolific offenders also. It is used mainly to monitor exclusion zones. GPS is also used to monitor inclusion zones which normally involve monitoring individuals to ensure that they are at home during a specific periods of time i.e. curfews. In Belgium, for example, GPS technology is used to enforce 24 hour home detention of individuals awaiting trial and not to enforce exclusion zones. This use is counterintuitive given that RF technology is capable of doing this but GPS has the advantage of being able to track individuals if they abscond and when they have to appear in court or during medical emergencies (assuming that they do not remove the tag). This Belgian example demonstrates that GPS tracking, which is more intrusive than RF EM, is not always appropriately utilised and that the value added by its use should always be made clear.

All jurisdictions, except Germany, were exploring the greater use of GPS technologies at the time of the research. It was viewed as providing greater flexibility and freedom for individuals than RF whilst enabling closer monitoring of their movements 24/7. Most interviewees recognised the downsides of GPS including the short battery life before recharging was required, weak or non-existent signal strengths in certain locations and

higher non-compliance rates. In practice, most GPS technology is used passively i.e. infringement alerts and/or tracks are scrutinised retrospectively rather than in real time (active tracking). All jurisdictions were exploring the potential to use GPS technologies in bi-lateral victims' schemes (in England and Wales a small pilot was underway) particularly in cases of domestic violence. Differences existed in whether their development might involve location-based (i.e. exclusion zones around victims' homes) or person-based (i.e. mobile systems which require victims to carry equipment). There was some nervousness about the potential for critical incidents to occur because of concerns about the capacity of the authorities to respond sufficiently quickly, which had resulted in a cautious approach being taken in terms of its development.

At the time of the research, England and Wales was awaiting the delivery of a 'hybrid' tag which would provide both RF and GPS capability. In theory this would have overcome the disadvantages of both technologies. It was envisaged that it would work as an RF tag dealing with issues with battery life and switch to GPS if monitored individuals violated their curfews therefore allowing the authorities to track and find them. In practice, delays and difficulties with manufacturing resulted in the project being abandoned and off the shelf solutions, i.e. GPS only tags, being procured instead (Raab, 2016). The original decision to procure new rather than existing equipment delayed the implementation of new EM contracts in England and Wales. Nevertheless, the concept of a hybrid tag was welcomed by some interviewees from Belgium, England and Wales and Scotland.

Schemes which use technology to monitor alcohol use are in their infancy or under consideration in the jurisdictions covered by this study. The Netherlands ran a pilot using so called 'sobriety tags' in 2014 but it was not continued. In England and Wales, a pilot was funded and operated by the Mayor of London's Office for Policing and Crime (MOPAC) (Pepper and Dawson, 2016). New legislation was enacted which allows for an alcohol abstinence monitoring requirement (AAMR) to be imposed as a requirement of community or suspended sentence orders. Orders are enforced using SCRAM technology, which measures alcohol use sub-dermatologically via a tag worn around the ankle. During the initial pilot, the number of individuals tagged has been relatively small (n=113) and the original target group (i.e. those who commit offences linked to the night-time economy) has not been the main group who have been tagged. Instead, drink drivers and individuals convicted of violent offences have been the most tagged groups (Pepper and Dawson, 2016). The AAMR was used significantly more in one court than the others in the pilot (Pepper and Dawson, 2016). Compliance rates were high at 92 per cent (Pepper and Dawson, 2016). In Germany, a breathalyser system may be used to monitor alcohol use and is placed at the monitored individuals' address. However, in practice it has not been used. By contrast, there was very little support for the introduction of remote alcohol monitoring in Scotland.

Technological solutions are being used or sought to make EM processes more efficient and/or effective. One important issue is to ensure that the equipment is fitted onto the correct individuals especially where they are unknown to the staff conducting installations. In England and Wales, the use of biometric data i.e. fingerprint scanners were being explored for this purpose. In the Netherlands, pictures are taken of high-risk individuals at installation which are shared with the police. Their purpose is to assist in recognising individuals if they enter exclusion zones.

6. Objectives of electronic monitoring

Many different objectives were attributed to EM by interviewees during this project. EM fits or can be made to fit many purposes to the extent that it has universal appeal. Yet it is also important to note that EM is a tool which is used to enforce pre-trial and penal measures. Consequently, its aims are inextricably linked with those measures rather than EM having its own specific objectives. One useful way to examine EM is to explore the ways in which it adds value to the measure(s) it is imposed alongside or as a replacement for. Using this perspective the different modalities of EM have varied aims and purposes.

The stated objectives of EM were largely shared in all jurisdictions. There were, however, differences in the prominence given to specific objectives and also a recognition that they had changed over time. Generally, rehabilitative and reintegrative goals were given priority in the Dutch system. The Belgian system had moved from one focused primarily on rehabilitation to one which was now more focussed on systemic goals i.e. reducing prison overcrowding and cost for the largest group of monitored individuals. Scotland was moving away from a punishment based approach predominantly focussed on restriction of liberty to an emphasis on the use of EM conditions and orders to support rehabilitation and desistance as well as risk management. The picture in England and Wales was also more mixed, with multiple objectives being pursued via the use of EM.

EM is often conceptualised as an alternative to imprisonment. One of its advantages, in common with all community measures, is that it keeps individuals out of prison therefore avoiding the harms associated with imprisonment. Yet, independently of whether it replaces prison, EM can be used to realise rehabilitative objectives. EM may enable individuals to maintain and possibly build up pro-social ties with their families, friends and communities. It also allows individuals to continue with their employment or work commitments. EM adds several unique elements to these commonly discussed advantages of community measures. One, RF but not necessarily GPS, EM imposes a daily structure on individuals' routines. The importance of this benefit of EM was echoed across the jurisdictions. Most often this is via night-time curfews restricting individuals' movements. In the Hesse project in Germany, however, RF EM is also used uniquely to ensure that individuals leave their accommodation and spend the requisite number of hours *outside* of the house undertaking useful activities. Two, EM provides an excuse for individuals to avoid the people and places which are linked to their offending (Hucklesby, 2009a). RF EM does this via the curfew and GPS via the fact that associates are reported not to want to have contact with monitored individuals. Three, monitoring is much more intense than other forms of community supervision and adds intensity to other community disposals. In Germany, for example, interviewees suggested that EM facilitates better access to individuals and enables probation staff to improve their knowledge of its clients because their caseload was lower. Four, EM assists with the management and completion of other community sanctions. For example, individuals may be more likely to attend and are better prepared for work placements/community service because of overnight curfews. This purpose can be enhanced by the provision of progress/violation/track reports to probation staff who are then able to discuss compliance issues at supervision meetings. The downside may be that supervision sessions become too focused on EM issues at the expense of discussing a broader range of topics although examples

of how EM and supervision can be combined were found in Belgium and the Netherlands. Many of these benefits may also aid reintegration back into the community. EM can usefully support the transition from custody to the community providing a 'half-way house' or bridge between the restrictions of prison and the liberty of life in the community. As discussed below, the Dutch system acknowledges this function explicitly by using a system of phased increases in the number of hours of freedom during the lifetime of EM. There was also some recognition amongst interviewees that EM can work against rehabilitative goals damaging relationships and employment opportunities and exacerbating existing problems but to a lesser extent than prison.

There was an acknowledgement by interviewees that evidence relating to offending and EM is limited. Despite this many respondents still identified reducing reoffending as a prominent goal of EM. GPS was viewed as more effective than RF EM in this regard because it was perceived to act as a greater deterrent. As the English and Welsh police were keen to point out, GPS tracks can be compared with reported crime data and provide evidence to support criminal investigations and the identification of suspects. Usefully GPS, and to a lesser extent RF, can exonerate individuals as well as implicate them in particular offences. The disjuncture between the curfew hours imposed and individuals' offending patterns and/or criminogenic risk was also mentioned as a drawback of RF EM in several jurisdictions.

Increasing victims' and public safety, linked to preventing the risk of offending, was widely acknowledged as an objective of EM and particularly, GPS. It was an especially important goal of the German federal scheme whose target group is very high-risk violent and sexual offenders where the potential for harm is high. The use of exclusion zones was becoming more common in jurisdictions except Belgium and Scotland and was viewed as a major advantage of GPS over RF. Exclusion zones do not themselves protect specific individuals or the public generally but they provide a warning system and buffer zone giving the authorities time to react if they are breached. Across jurisdictions the potential to use GPS EM as a tool to provide an early warning system for domestic violence victims was being actively investigated. Worryingly, however, such schemes were often discussed as providing *protection* for victims signalling unrealistic expectations about the technologies capabilities. Uniquely in Scotland, RF technology is used to monitor away from exclusion zones although they are little used in practice.

In England and Wales, the fact that EM provides concrete evidence of breach and is therefore enforceable was viewed as a positive purpose of EM. According to several policy-makers, providing compliance information independently of probation services was viewed particularly positively because it dealt with longstanding concerns about how readily probation services enforce community sentences. In this way, EM provided a credible community measure on its own as well as bolstering the credibility of other forms of community sanction. An official objective of EM in England and Wales is punishment. Yet, this was rarely mentioned by interviewees suggesting perhaps that this was a subordinate objective in practice or that it was a taken for granted goal.

A prominent driver for increasing the use of EM in Belgium and England and Wales and to a lesser extent in the other jurisdictions was the cost of EM. Although the actual costs of EM are hotly debated and hidden costs such as procurement costs are rarely included, it is agreed that EM is substantially cheaper than imprisonment. In the wake

of the financial crisis, fiscal concerns have become more prominent as governments have attempted to reduce the use of imprisonment. There appeared to be little awareness that EM's cost reducing capacities would be limited if it replaced other non-custodial measures instead of imprisonment because it is usually more expensive than other forms of supervision in the community especially in its less intensive forms.

7. Integration with criminal justice structures and agencies

The extent of private sector involvement in EM falls broadly into two models. The Anglo model (England and Wales and Scotland) and the European model (Belgium, Germany and the Netherlands). The private sector is responsible for provision of all of the EM services in the Anglo model including equipment and monitoring services (including installing and de-installing equipment, contacts with monitored individuals by telephone or visits to their homes, operating control rooms, reporting violations and breaches). In the European model the private sector usually provides only the equipment and associated software and technical support, which is either bought or leased. There are, however, differences between jurisdictions in the involvement of the private sector reflecting a continuum between the two extremes of the models. In Germany, for example, the installation of equipment is undertaken by a private contractor although the remainder of the service is provided by state agencies. In the Netherlands private sector involvement has recently decreased. The private sector provides the equipment but responsibility for installing and maintaining the equipment was transferred to the Transport and Support Service (TSS) of the prison service in September 2014 and the monitoring service is expected to follow shortly. In Belgium, two separate state run monitoring centres (one serving the Flemish and one serving the French and German populations) are responsible for all aspects of EM. Whilst the Anglo model is wholly operated by the private sector, state agencies are responsible for breach decision-making, varying requirements and ensuring that monitored individuals are returned to prison or court when violations surpass breach thresholds. Only in exceptional cases, where risks are deemed to be especially high, may state agencies become more involved with the day-to-day monitoring of individuals.

The extent of private sector involvement in EM is one of the determinants of the level of integration of EM into the broader criminal justice structures generally and probation services in particular. The most highly integrated model exists in the Netherlands where EM is embedded into prison and probation services to the extent that probation staff are present when equipment is installed and are responsible for making all decisions relating to EM. At the other extreme, in England and Wales EM operates in parallel to the criminal justice system with little integration of EM with probation or other criminal justice services (CJJI, 2008). For example, the use of pre-trial EM, standalone EM sentencing requirements and Home Detention Curfews (HDC) in England and Wales require no state agencies to be involved once imposed until or unless orders are breached. Even where EM is one of several requirements of community or suspended sentence orders and offender managers oversee all aspects of the case, joint working and meaningful communication between probation services and offender managers on the one hand and the EM provider on the other are rare. Similarly, Scotland's Restriction of Liberty Orders (RLOs) can be imposed as a standalone measure (i.e. EM curfew and/or exclusion zones) or in conjunction with the forms of community orders, which may involve Criminal Justice social workers (probation officers) as 'supervising officers'. HDC which comprise nearly half of all EM use in

Scotland also operated at the time of the research with no formalised involvement of state agencies unless orders are breached, although voluntary throughcare support is available.

Belgium has been moving from a more integrated to a less integrated model of EM in recent years resulting in a bifurcated model of EM. Justice assistants from the Houses of Justice (probation services) remain heavily involved in the supervision of monitored individuals released from prison before being conditionally released and who are serving sentences of more than three years. For more recently introduced uses of EM (pre-trial and early release for those serving sentences of three years or less) the involvement of the House of Justices is non-existent or negligible. The picture which emerges from this study is for less integration with criminal justice agencies when private sector involvement is highest; when the scale of use of EM both in terms of numbers and modalities increases or is already high; and/or when EM is used more extensively pre-trial. As discussed below, the level of integration with criminal justice agencies influences how EM operates. In particular, the more highly integrated EM with probation services the more discretionary decision-making takes place.

8. Information exchange and multi-agency working

EM involves most criminal justice agencies to a greater or less extent and some communication issues were highlighted in most jurisdictions. Delays in information exchange were reported in Belgium between the police and monitoring centres, in England and Wales and the Netherlands between the courts and the private contractor and probation services respectively. Inaccurate or illegible information was reported to be received by the contractor from the courts in England and Wales. A single point of contact within both monitoring centres and other agencies, particularly the police was viewed as facilitating timely information flow and exchange in England and Wales.

In most jurisdictions, antiquated methods of communication (post and fax) were recorded as being a barrier to effective and efficient communications between agencies. Contact by telephone was viewed as a positive method of communication. Technology facilitated efficient information exchange. The introduction of e-mail to facilitate information flow between the courts and the contractor was reported to have improved communication in England and Wales. Similarly in Scotland, communications between the contractor and state agencies were via a secure electronic system. Belgium had recently introduced a new information system. It contains all relevant information about EM processes and decisions and is accessible to staff at the monitoring centres, Houses of Justice and the prisons. Similarly, England and Wales was at the time of writing in the process of setting up a portal which will be accessible to probation and prison services and the contractor. In both jurisdictions, the police do not or will not have access to the system (see below).

Information gleaned from RF and GPS EM is useful to the police as both an intelligence gathering and investigatory tool. However, jurisdictions are mindful of the potential for information to be misused. Consequently, in all jurisdictions the police do not have routine access to EM data. Instead, in all jurisdictions they are required to request specific data on individuals via formal processes (usually via written requests) either to the prosecutor (Germany and the Netherlands), monitoring centre (Belgium and Scotland) or National Offender Management Service (NOMS) (England and Wales). These requests for information need to be specific and not general i.e.

whether a named monitored individual was at home at a given time. In England and Wales, the police want wider and easier access to EM data. Interviewees outside of the police were cautious about facilitating greater police access suggesting that current practices complied with the important principals of proportionality and necessity.

Germany has extensive data protection provisions in place and agencies were very cautious and reluctant to share information about monitored individuals. The monitoring Centre (GÜL) and the probation service have access to all information relating to individuals but the Hesse Centre for Data Processing (HZD), a subdivision of the Hesse Ministry of Justice, who are responsible for the technical elements of EM, only has access to anonymised data on individuals.

The lack of knowledge of, and engagement with EM, by criminal justice agencies was highlighted in several jurisdictions as a barrier to its effective use. In the Netherlands, for example, judges and prosecutors are not always aware of what is technically feasible or the time required to prepare for EM. In England and Wales and Scotland, some courts and individual judges use EM much more than others resulting in regional variations in use. In England and Wales, also, knowledge of probation staff was reported to be uneven. Evidence suggests that training, education and other engagement activities can develop awareness of EM, increasing its use and ensuring it is used more appropriately.

9. Target groups

EM is used for a wide range of individuals across the study's jurisdictions reflecting its universal appeal, multiple objectives and different modalities and technologies. Most jurisdictions have eligibility criteria and interviewees also had views on groups which were potentially unsuitable for EM. These included individuals who have certain mental illnesses or those with learning difficulties. The Netherlands also excludes individuals whose drug and alcohol use is defined as problematic. Individuals accused or convicted of offences related to domestic violence were often viewed as unsuitable for current uses of EM although bilateral victims monitoring has the potential to change this. There are differences also in views about whether EM is suitable for low risk offenders. In the Netherlands, it was viewed as disproportionate to impose EM when offences were less serious and/or the risk of reoffending is low. In England and Wales and Scotland the existence of standalone orders results in EM being used for a wide range of offenders including those who are accused or convicted of less serious offences.

The target groups for GPS are narrowly defined currently. In all jurisdictions using GPS it is targeted at offenders who pose highest risk of harm either because of the seriousness (usually sexual or violent offences) or persistence of their offending. In Belgium, GPS is used with defendants who are awaiting trial. In contrast to defining target group for GPS by inclusion criteria, target groups for RF EM are defined by both exclusion and inclusion criteria. An example of an inclusion criterion is found in the Netherlands where EM (both RF and GPS) must always be imposed on individuals who are conditionally released from prison having served sentences for violent robbery or other high impact offences. Examples of inclusion criteria are found in both Belgium and the Netherlands whereby only those who are sentenced to imprisonment are eligible for EM and in Belgium the EM regime is dictated by sentence length. Inclusion

criteria, i.e. 24 hour house detention, are also used in Belgium in pre-trial use of GPS. Inclusion and exclusion criteria are one of the methods used in several jurisdictions in an attempt to ensure that EM is utilised only as an alternative to prison.

Generally RF EM has much broader target groups than GPS. In England, for example, there are no exclusion criteria for the use of EM at the pre-trial or sentencing phases except that monitored individuals require a suitable address (see below). In theory, anyone is eligible for RF EM at the pre-trial or sentencing stages. There is a link between the extent to which inclusion and exclusion criteria are defined and the frequency with which EM is used. In Belgium, the number of exclusion criteria has reduced over time to facilitate the greater use of EM. In England and Wales, in contrast to other modalities numerous exclusion criteria exist for HDC. Its use has been limited as a result and the criteria are viewed as a barrier to greater use. Conversely, at the pre-trial stage no exclusion criteria exist and use has reportedly increased. In Germany only a small number of individuals are eligible and use of EM remains very small.

EM requires a stable address which is not linked to individuals offending. In practice this excludes some potential candidates. In Belgium and the Netherlands alternative addresses (other than those provided by family and friends) are in very limited supply or not available. In England and Wales, alternative accommodation is available via the Bail Support and Accommodation Service (BASS) which provides housing in small units for defendants awaiting trial and prisoners released from custody on Home Detention Curfew (HDC) (NOMS, 2013).

10. Creative use

There is a general lack of creative use of EM in the five jurisdictions with isolated examples of innovative practices. Generally, EM is used in highly structured and routinized ways. There are striking similarities between jurisdictions but also some differences which as discussed in this section.

10.1 Duration and intensity of electronic monitoring

EM has the potential to be used very flexibly and at different intensities not only in relation to the technology which is deployed but the EM regime including elements such as days and hours of confinement. This section explores the ways in which EM is used in each of the jurisdictions to show the diverse ways in which EM is applied demonstrating that EM cannot be discussed as a homogenous penal measure.

No maximum periods are prescribed in the jurisdictions which use EM in the pre-trial phase (Belgium, England and Wales and the Netherlands). Consequently, the duration of EM pre-trial, when individuals are unconvicted, is the least regulated modality, potentially resulting in individuals being subject to EM for long periods of time. No jurisdiction formally takes account of periods spent on EM pre-trial during sentencing. Only Belgium and England and Wales discount custodial sentences once imposed to take account of time spent on EM pre-trial (one day on EM being the equivalent of a full day and half a day in custody respectively).

In jurisdictions in which EM is used at the sentencing stage, maximum periods are prescribed. For example, the maximum period of EM for autonomous sentences in Belgium, England and Wales and Scotland is 12 months and 24 months in Germany.

In practice, periods on EM are shorter at around six months in each of these jurisdictions. In the Netherlands, the maximum possible duration of EM is technically the same as that which applies to probation supervision and is, therefore, much longer at 10 years or life as a result of very recent legislation which creates the potential for lifelong supervision.

Time spent on EM as part of prison release schemes varies and depends on the length of the sentence and early release criteria. Only the English and Welsh and Scottish Home Detention Schemes (HDC) stipulate maximums (135 days and six months respectively). In Germany, the supervision of conduct order can be imposed indefinitely with reviews at least every two years in most cases. The GPS police 'voluntary' schemes in England and Wales fall outside of any legislative framework and, in theory, may be used indefinitely. In all jurisdictions it is possible to use EM for an indefinite period of time because different modalities can be used consecutively and/or the same modalities can be used repeatedly resulting in periods of EM being much longer than prescribed by the legal maximums for any one modality.

The intensity of EM also relates to the periods of time individuals are confined during any one day. Mostly these EM regimes relate to RF EM where individuals are required to stay in at specific addresses i.e. curfewed. In Belgium, however, the most intense scheme uses GPS technology to confine individuals to their addresses 24/7. As a result they are totally reliant on the assistance of others to undertake daily tasks such as shopping. Usually, but not in this case, GPS has the advantage of providing greater freedom of movement for individuals rather than confining them to particular places at specific times.

There is an important distinction between the approach to EM curfews of England and Wales and Scotland on the one hand and Belgium and the Netherlands on the other to the language of confinement. In England and Wales and Scotland requirements are discussed in terms of periods of confinement. By contrast, hours are stipulated in terms of number of 'free hours' in Belgium and the Netherlands.

Table 4 shows the statutory restrictions on the daily hours under EM. It demonstrates that periods of confinement under EM vary from 2 to 24 hours. It also shows that jurisdictions tend to stick to the same set hours for different EM modalities. Belgium and England and Wales are exceptions with maximum curfew hours varying for different EM modalities. Most statutory restrictions presume that EM will apply equally seven days a week. In practice, this is how EM operates in most jurisdictions. In the Netherlands for example there are core daily curfew hours (23.00-06.00). These patterns of use stifle creativity because it leaves no option to vary hours or allow individuals days without restrictions as a reward for compliant behaviour or as a weaning off mechanism towards the end of their period on EM. The Belgium system has a system of 'furloughs', i.e. days without EM, but this is not explicitly linked to compliance. Instead it is part of the detention trajectory of convicted prisoners and is therefore connected with monitored individuals' legal status as prisoners. The Netherlands uniquely also restricts hours of freedom at the weekends to a greater extent than the week for more risky individuals thereby restricting 'leisure' time to a greater extent than 'working' time.

In theory the English and Welsh and Scottish approach, which generally has lower maximum hours of confinement and no core hours, enables greater creativity. Curfew

hours can be arranged in any way including during the day or night, for example, when football matches are taking place or when children are not in school with the aim of preventing offending. Hours may also be split up throughout the day enabling parents to take and pick up their children from school for example. In practice, however, curfew hours are normally applied rigidly usually for 12 hours a day, seven days a week between 19.00-07.00 although some more creative use was reported.

	Belgium	England & Wales	Germany	The Netherlands	Scotland
Pre-trial	24 hour curfew	Up to 24 hours curfew	None specified	2-17 hours freedom	
Sentence		2-16 hours curfew	None specified	2-17 hours freedom	Up to 12 hours curfew
Post-custodial	Min. freedom: 4 hours. Max. freedom: 12 hours	9-12 hours curfew		2-17 hours freedom	Up to 12 hours curfew

Belgium has the most rigid regime of curfew hours of the jurisdictions for those sentenced to prison sentences of three years or less. The four hours free time that all individuals on RF EM are entitled to must be taken between 08.00 and 12.00. A maximum of 12 hours free time is available for those working full-time who are only able to work for a maximum of six days. This maximum is very rarely exceeded. Most appointments, including job interviews and medical appointments, are expected to take place during free hours. There is more flexibility with hours for individuals serving sentences of more than three years who are supervised by Justice Assistants than those serving sentences of three years or less. For example, free hours must always be taken in one block for the latter group but can be distributed throughout the week for the former group. Therefore, EM regimes are stricter for individuals serving shorter sentences and presumably whose cases are less serious.

A second distinction between jurisdictions is that in England and Wales and Scotland, hours tend to remain unchanged over the period of the order unless the authorities allow them to be amended because the circumstances of individuals change (see below). In Belgium hours of freedom depend upon whether individuals undertake 'useful activities'. The number of free hours are fixed at 12 hours for full-time and eight hours for part-time 'useful activities'. The number of free hours during weekends may change (increase as well as decrease) over the lifetime of orders if individuals comply. Similarly, in the Netherlands, hours for freedom may be increased over time if individuals are compliant (see below). Changes in curfew hours can be made by probation officers without an application from monitored individuals. The purpose is to reward and/or incentivise compliance and support rehabilitation, resettlement and desistance. It is standard practice to increase the hours of free-time over the lifetime of orders. This process is facilitated by having three levels of curfew requirements. Table 5 shows how the levels relate to free-time and demonstrates that free-time may

increase from 12 hours during the week and four hours at weekends to 17 hours throughout the week. In the Dutch penitentiary programme the period on EM is divided into phases or sections. For individuals who begin on level three, their EM programme is divided into three equal parts. As long as they comply, they move down levels at the two-third and one-third point of their programmes. The aim is for all monitored individuals to be at level one at the end of their period of EM so that the differences in the amount of free-time between being on and off EM are minimised.

Curfew level	Weekday	Weekend	Total per week
3	12	4	68
2	14	8	86
1	17	17	119

There was little evidence outside of the Netherlands that hours were reduced during the lifetime of curfews due to sustained compliance although isolated examples were provided by some interviewees. Similarly, none of the jurisdictions have formalised processes to end EM earlier than planned because of compliant behaviour although in Germany probation supervision, and therefore EM, can be terminated early. In nearly all cases EM can be extended as a result of non-compliance. For example, in Belgium, any time monitored individuals are absent during their curfew may be deducted from their free time subsequently.

10.2 Changes to monitoring requirements

All jurisdictions recognise that changes may be required to monitoring requirements as a result of unforeseen circumstances. This may involve temporary or permanent changes to addresses, curfew hours (RF) or exclusion/inclusion zones (GPS). The process by which decisions are taken varies across the jurisdictions and depends on the EM scheme individuals are being monitored under and the type of change being requested. Generally, the more major or permanent the change the more scrutiny is applied and the greater involvement of prison officials, prosecutors or courts. Allowing probation staff to make these decisions, as in the Hesse project in Germany and in Belgium, provides an opportunity for greater interaction and discussion between staff and monitored individuals potentially strengthening compliance messages and consideration of individuals' circumstances. The possible downsides are less consistency and credibility. Similarly the more formal the process, the longer the time taken to make decisions is likely to be. Not all required changes are foreseeable in advance for example attendance at funerals, so a flexible and responsive process is required to avoid unnecessary non-compliance events.

Evidence supporting the requested change in curfew hours was required in all jurisdictions but interviewees suggested that processes ran smoothly and, as long as reasons were valid, changes would generally be allowed. There were three exceptions to this. Changes to requirements relating to federal cases in Germany were reported to be bureaucratic and difficult, changes to exclusion zones in the Netherlands and changes to 'free time' for prisoners serving sentences of three years or less in Belgium.

Changes were generally more likely to be approved if the reasons were work-related in all jurisdictions.

An interesting difference in the response to requests for changes in curfew hours by monitored individuals is that in the Netherlands the curfew times would be shifted temporarily or permanently to accommodate individuals' commitments but the number of hours would remain the same. By contrast, in England and Wales and Scotland, hours would be more likely to be simply removed.

11. The monitoring process

The monitoring process is fundamentally the same in each jurisdiction but there are some differences in the ways in which EM is implemented. The most important for our purposes relate to consent, the installation and de-installation of equipment and the support provided to monitored individuals which are discussed in this section.

11.1 Consent

The importance placed on gaining the consent of individuals to the use of EM varied across jurisdictions. The federal scheme in Germany is the only scheme which imposes EM on individuals whether or not they consent because the individuals involved are assessed to be 'dangerous' offenders. The other jurisdictions gain consent from monitored persons but some by more explicit means than others. Each of the jurisdictions requires individuals to sign a document outlining the requirements of EM and stating that they agree to abide by them. In theory, this is gaining consent. But when and how this is done during the installation process may militate against it being viewed as a real option not to consent. For example, in England and Wales and the Netherlands it was observed that monitored individuals were sometimes asked to do this *after*, or in Scotland immediately before, equipment was fitted. In several schemes within jurisdictions, individuals apply for EM (e.g. Home Detention Curfew in England and Wales and Scotland). In these circumstances consent can be implied. The critical question is to what extent is consent informed and freely obtained. Given the context of criminal justice and that the alternative to EM is often presumed to be imprisonment, it is inevitable that consent is constrained to some extent. Observations suggest that the information received by individuals prior to EM is variable; that pressure to consent is sometimes applied or at least experienced; and the frequency that questions arise during the period they are monitored suggests that individuals are not always fully informed about or aware of the implications of EM prior to equipment being fitted.

'Voluntary' schemes have been used in two jurisdictions (England and Wales (IOM) and Germany (Hesse)) to enable the utilisation of EM where the legal basis for using it does not clearly exist. Voluntary schemes, whereby individuals are required to opt into schemes, raise legal as well as ethical issues relating particularly to the extent to which individuals are coerced into joining the schemes. In England and Wales for example, consent is gained via conversations with police officers, often in prison, where 24/7 GPS tracking is offered in return for less 'physical' police surveillance and practical assistance such with accommodation, food parcels etc.

EM is a unique tool in criminal justice which requires that equipment (a monitoring unit for RF and a beacon for GPS) is placed in monitored individuals' accommodation. In

the case of RF (and sometimes GPS where a curfew is imposed) EM individuals are also confined to the address for at least part of the day. Consequently, the use of EM may have considerable implications for others living in the property (Vanhaelemeesch et al., 2013). In most jurisdictions this is recognised and at least one individual at the proposed address should be expressly asked to consent to individuals being monitored. But the parameters of consent requests differ. In most jurisdictions, consent is asked of the legal owner or tenant of the property. Others living at the property are not routinely asked for their consent. In Belgium, if the monitored individual is domiciled at the address then consent is not obtained. Householders' consent is also constrained by the knowledge that if they do not agree individuals may remain in, or be sent to, prison. The circumstances in which consent is obtained also impact upon the extent to which it is freely given. Gaining consent prior to the decision to use EM and in a way which is independent from individuals who are potentially going to be subject to EM, i.e. where they are not present, are likely to result in consent being given more freely. For example, in Belgium and the Netherlands consent is obtained by the Justice Assistants or probation services respectively prior to release on EM being agreed and without the monitored person being present. Observations suggest that householders are provided with information of variable quality about the implications of having an individual subject to EM in their property leading to questions about how informed their decisions can be.

All jurisdictions have mechanisms in place for householders to withdraw their consent. In England and Wales, householders' consent is assumed unless it is expressly withdrawn and the process for doing so is quite onerous. Some evidence was uncovered to support the intuitive link between not gaining informed consent from householders prior to individuals being monitored and withdrawal of their consent at a later stage.

11.2 Installing and deinstalling equipment

Most commonly equipment is installed at the address where individuals will be monitored by a mobile/field team. In all jurisdictions except Scotland these teams primary task is to visit individuals in their homes mainly to install and deinstall equipment. In Scotland, most monitoring officers work both in the control room at the National Electronic Monitoring Centre and the community visiting people's homes enabling a greater degree of flexibility and appreciation of the working environment of different sections of the operation. In the Netherlands, uniquely probation staff accompany crews to install equipment.

In most jurisdictions there are restrictions on when installations must take place. The time between notification of an order and installation is much shorter in some jurisdictions than others and is linked to broader penal cultures about timescales between the imposition and execution of punishment. Short time periods result in logistical challenges for equipment installers. For example, in England and Wales and Scotland installations of court ordered EM must be completed between the start of curfews and midnight on the day that curfews are imposed by the courts if EM providers are notified before 15.00 or on the day after if they are notified after 15.00. For Home Detention Curfews (HDC) notification periods may be longer but installations still must take place on the day of release during curfew hours and before midnight in England and Wales and between 16.00-19.00 in Scotland. In Belgium and the Netherlands, EM is organised differently allowing installations to be planned more

systematically. In Belgium and the Netherlands a fixed number of installations are able to take place per day. In Belgium once all of the slots are taken waiting lists are created which can include up to 1000 individuals. In both jurisdictions certain categories of cases are prioritised (in Belgium, prisoners serving sentences of more than three years, cases prioritised by prison governors, pre-trial cases and revocations and in the Netherlands those deemed to be the highest risk). In these cases equipment must be installed within five days in Belgium and within three days in the Netherlands. The disadvantage of the Belgian, and to a lesser extent the Dutch, systems is that some individuals (in Belgium those serving sentences of more than three years) awaiting EM remain in prison, increasing the size of the prison population and its damaging effects. There has also been criticism of the waiting list system which delays justice and leaves individuals in a state of liminality. For example, in Belgium, individuals serving sentences of three years or less wait for EM at home under a system of 'interruption of the execution of punishment'. However, the Belgian and Dutch systems are logistically easier to manage than the UK systems. By contrast the UK systems result in logistical challenges but means that individuals do not remain in prison nor do they have to wait to be monitored. It also ensures a stronger link between the imposition and execution of punishment.

In all jurisdictions, most individuals are allowed to travel between the prison/court and their accommodation prior to the installation of EM. This poses a risk that individuals go missing and are not at their address when field teams visit to install equipment. For example, in England and Wales, a proportion of installations are never completed although not all of these result from individuals not being at home. In Belgium, Germany and the Netherlands (for prison leave only), GPS equipment is installed in the prison and visits to individuals' addresses are conducted within 24 hours to install the base unit. This so called 'plug and play' method has the advantages of dealing with the logistical challenges of installing equipment on large numbers of individuals and is more cost efficient. The potential downsides are that equipment is not installed correctly and it potentially creates additional uncertainty and anxiety for monitored individuals.

The number of personnel who undertake installations differs between jurisdictions. In England and Wales and Scotland, installations are usually undertaken by one monitoring officer. In the Netherlands, up to three people are present, the technical worker, the supervising probation officer and the EM probation team specialist although the latter two roles are often combined. There is no evidence to suggest that installations were carried out differently or more thoroughly in the different jurisdictions. Indeed, similar issues were discussed. For example, all personnel were cautious about what they told monitored individuals about the capabilities of the equipment (see also Hucklesby, 2011).

Planned deinstallations take place in several ways. Providers or agencies may visit individuals' homes to remove the equipment, monitored individuals may remove the equipment themselves and return it to a specified location or they may be required to attend a specified location (e.g. prison) to have the equipment removed. In England and Wales, the Netherlands and Scotland, deinstallations at the end of an order tend to take place at home. In Belgium, deinstallations of equipment take place at home for all schemes but individuals may also be told to return to prison to have equipment removed when workloads of the mobile teams are too high. In England and Wales and

Scotland, equipment must be removed before midnight on the final day of curfews when imposed as a sentence or under HDC adding to the logistical challenges of the monitoring process. Deinstallations when EM is used pre-trial are more complex because of the uncertainty of when the period will come to an end. There are considerable economies of scale in requiring individuals to return to a central location to have equipment removed. The downside may be additional losses of equipment because individuals do not attend particularly if this is the end of their orders. Conversely, visiting their homes facilitates positive messages about continuing new lifestyles to be reinforced.

Unplanned deinstallations are carried out by a range of organisations including hospitals as a result of medical issues, the police when individuals are arrested as a consequence of potential breaches or further alleged offending and prison services when individuals are returned to prison following breach. In England and Wales, only the electronic monitoring contractor has specialist equipment to remove tags so a significant number of tags are irreparably damaged as a result, with significant cost implications.

11.3 Supervision of, and support for, monitored individuals

The European recommendations on EM (Council of Europe, 2014) state that all monitored individuals should be supervised by probation services. However, this study demonstrates that different models of support exist within and between jurisdictions. It has also highlighted the important distinction between supervision and support. Whilst probation supervision is appropriate for some monitored individuals it may not be necessary or proportional for all. For example, it is inappropriate for unconvicted individuals to be subject to probation supervision and for low level offenders, supervision by probation services may be viewed as net-widening. What is important is that an appropriate and proportionate level of support is available to monitored individuals during their time on EM.

Whether monitored individuals are supervised by probation services depends on the integration of EM with probation and the type of order. In Germany and the Netherlands monitored individuals are always supervised by a named probation officer. In Belgium, monitored individuals serving sentences of three years or more are supervised by Justice Assistants whilst other groups are not. In England and Wales only community orders with multiple requirements are supervised by probation services but these might not include probation supervision as a specific requirement.

It is important to ensure that monitored individuals are supported because EM raises a considerable number of questions and concerns from individuals both directly related and unrelated to EM. Several models for providing support exist in the five jurisdictions providing an area of divergent practices. In England and Wales and Scotland, support is available 24/7 via control centres operated by the private sector contractor. In the Netherlands, support is predominately provided by the probation service during office hours supplemented outside of these hours by a control centre run at the time of writing by the private sector providers with an on-call probation officer to deal with violations and breaches. In Belgium, the model is moving away from support provided by Justice Assistants to a control centre model but there remains only limited availability during the night. Germany offers support via a control room staffed 24/7 by at least one social worker.

12. Compliance, enforcement and breach

One of the advantages of EM is that it provides certainty as well as evidence of non-compliance. Violation reports (detailing when monitored individuals leave and enter addresses) are available from RF technologies and detailed reports of offenders' whereabouts can be produced from GPS tracking. The sensitivity of EM equipment means that minor violations are common such as being a few minutes late at the start of curfews (RF) and straying a short way into exclusion zones for very limited periods of time (GPS). All jurisdictions allow some leeway in their breach policies. Table 6 summarises the reasons for breach in each jurisdictions and demonstrates a high level of concordance.

	Belgium	England & Wales	Germany	The Netherlands	Scotland
Missing part of curfew period	✓	✓		✓	✓
Missing whole curfew period	✓	✓		✓	✓
Strap tamper	✓	✓	✓	✓	✓
Tag removal	✓	✓	✓	✓	✓
Base unit tamper	✓	✓	✓	✓	✓
Unacceptable behaviour towards staff	✓	✓		✓	✓
Lack of cooperation with programme	✓	N/A		✓	
Alcohol/drug use	✓		✓	✓	
Enter exclusion zone	N/A	N/A	✓	✓	✓

Breach policies across three jurisdictions (Belgium, England and Wales, and Scotland) are remarkably similar. In these jurisdictions, breach policies are determined by the type of violation and make no reference to monitored individuals. In Belgium and Scotland, violations are split between those related to curfew hours and others such as strap tampers or removal, violence or threats against staff. Scotland also has a third category which includes breach of exclusion zone. In England and Wales, there are two levels of violations categorised according to seriousness with more serious violations (e.g. missing a whole curfew period, removing a tag, violence/threats against staff) resulting in immediate breach action. How much leeway individuals are given in relation to absences during curfew hours varies between jurisdictions particularly in relation to time violations. In the Netherlands, absences of 10 minutes at the beginning of curfews are discounted. In other jurisdictions, breach thresholds for post-conviction uses of EM differ. In Belgium, breach action is taken after four hours of absence compared to two hours of accumulated time violations (i.e. in multiple curfew periods) in England and Wales and as little as 20 minutes absence in the Netherlands. Levels

of seriousness also differ between jurisdictions. In Belgium missing four hours of a curfew is considered to be serious and results in immediate breach. In England and Wales, violations which involve missing the whole of a curfew period are more serious. By contrast, in the Netherlands initial decisions about how to respond to violations are taken on the basis of risk and priority level relating to individuals rather than on the type of violation. Explanations from individuals are sought earlier in the process in the Netherlands before the formal breach procedures are formalised whereas in other jurisdictions breach reporting procedures begin and explanations are sought afterwards. The Netherlands, therefore, has a more discretionary system whereas Belgium (for those sentences to three years or less), Scotland and England and Wales have a more routinized approach.

Greater probation involvement in breach decision-making results in a more discretionary process. This is illustrated by the bifurcated approach in Belgium. For sentences of imprisonment of more than three years, Justice Assistants are responsible for instigating breach proceedings. For sentences of three years or less, the management of the monitoring centres make decisions to begin breach proceedings. Contrary to what might be expected, interviewees suggested that the response to violations was less strict for the former than the latter group. This was reported to be because sentence implementation courts took account of other factors such as compliance with other conditions i.e. they took a more individualised approach. Similarly, in England and Wales, before recent changes to breach procedures, enforcement of standalone curfews undertaken by monitoring companies was regarded as stricter than for integrated community orders where breach decisions were taken by offender managers (i.e. probation staff). As a consequence, in both Belgium and England and Wales, breaches are more rigorously enforced for individuals convicted of less serious offences.

In jurisdictions where EM is used for multiple purposes, differences also exist in breach thresholds within countries. This has the potential to be confusing for monitored individuals if they are subject to different modalities of EM at the same or different times. In England and Wales, for example, breach action is taken very quickly in relation to short periods of absence where EM is used pre-trial compared with the whole curfew period or two hours of accumulated time violations for community sentences.

All breach policies have a graduated approach to violations. Responses are escalated from warning letters to enforcement via arrests or recall to prison. Violations deemed to be serious usually result in immediate enforcement action. Available punishments for violations varied depending on the jurisdictions and the type of EM but they included continuing bail/sentence/early release as before to revoking the order/licence. Concerns were raised in several jurisdictions that final breach decisions which are at the discretion of the prison governors (Belgium) or courts (England and Wales) are too lenient resulting in individuals being re-released on EM and in the case of Belgium being re-released too quickly after recall to prison. In Belgium, inconsistencies in decision-making were reported as a result of prison governors making decisions about the re-release of individuals which were potentially influenced by considerations such as overcrowding in the prison. Variations in decision-making were also reported between the local and federal levels in Germany where the probation service has the discretion to decide not to take formal action as a result of a violation. In England and

Wales, breach decisions relating to sentences and HDC are now taken by a central enforcement team at National Offender Management Service (NOMS) which should mean that decisions are more consistent and made on the basis of objective criteria although variations were reported to remain.

All jurisdictions have mechanisms for monitored individuals to provide explanations for the violations. The actual process varies within and between jurisdictions. England and Wales has the most routinized with specific requirements and timescales dictated in a formal breach procedure whereas in several other jurisdictions (Belgium and the Netherlands) explanations may be more informally sought by phone or during meetings with monitoring management or probation staff. Concrete evidence to support explanations such as letters from hospitals and so on is required in every jurisdiction. If evidence is valid absences are authorised and no breach action is taken.

Violations reports which provide details of all curfew infringements and not just those which reach breach thresholds are made use of in a number of ways. In the Netherlands, these reports are used in supervision sessions with monitored individuals to discuss their compliance. This has the advantage of making individuals aware that they are being watched and how sensitive the equipment is. In Scotland, special arrangements have been made for some judges to have access to this information so that they can monitor compliance more closely. The limitation of the Scottish approach is that individuals may be treated differently depending on which court they appear in and which judge they appear in front of. Whilst it is clear that these reports can be useful to probation staff and others, the volume of data contained in them may be overwhelming. There are also questions about the ease at which the information can be interpreted and used in a constructive way. Wider use of progress reports would be facilitated by a more easily accessible format being devised.

The point at which the responsibility of the monitoring agency to monitor individuals ceases differs between jurisdictions. In Belgium, once a breach has been reported to the police or prison service individuals are no longer the responsibility of the monitoring centre, EM ends and the file is closed. By contrast, in England and Wales monitoring continues until the provider is notified by the courts or prisons that the EM requirement is no longer in place. The English and Welsh system has caused a number of difficulties because communications delays have meant that individuals may be monitored when orders have ceased and providers have been overpaid for monitoring individuals who were no longer being monitored.

13. Diversity

In all jurisdictions except Scotland there was a lack of awareness of issues relating to diversity particularly amongst policy makers and management. Policies which specifically related to all of the diversity issues which could arise did not exist although there was some evidence that particular issues relating to diversity were addressed. Generally, ethnicity and religion were particularly poorly accounted for whereas there was more evidence that jurisdictions had considered the implications of gender in the use of EM. In several jurisdictions, regulations existed relating to who could visit the home of females and/or fit their tags but this was as much about protecting the workers from accusations of sexual misconduct than considering the experiences of monitored individuals. Two jurisdictions had put specific measures in place to accommodate deaf individuals, one of which involved the use of SMS texts rather than phone calls. Most

commonly, any issues relating to diversity were reported to be dealt with on a pragmatic basis. Employees who interacted with monitored individuals were much more aware of diversity issues, stating that they were faced with these regularly and accommodated them on a case by case basis. By contrast, awareness of diversity issues was widespread in Scotland and featured in contractual arrangements and policy documents.

Jurisdictions had different ways of dealing with individuals who were unable to speak the native language. In England and Wales and Scotland, companies were employed to provide translation services usually over the telephone. In England and Wales, however, operational staff raised concerns about the usefulness and efficiency of the services relying instead on family and friends to communicate with monitored individuals when visiting homes. By contrast, as a result of the split of the National Monitoring Centre in Belgium into Flemish and French speaking communities the additional payment for staff working in a bilingual context has been abolished for Flemish monitoring staff, discouraging them from speaking the other official languages.

14. Electronic monitoring data

The project identified different approaches to the use and storage of data in the five jurisdictions in relation to who stores data, who has access to data and how long data are retained. EM produces a significant amount of data relating to individuals. GPS technologies obviously collect considerably more detailed data on individuals' movements but both RF and GPS technologies collect data 24/7. The potential to harvest information about individuals movements raises significant legal and ethical issues about how these data might be used as well as opportunities to glean information which may be useful for purposes beyond EM, for example, for intelligence gathering.

Questions about the appropriate use and storage of these data become more urgent as the length of time that EM has been used in Europe increases. Germany's stringent data protection rules mean that all geographical data relating to EM are destroyed after two months unless it is required as evidence in a criminal case. At the other extreme, data are stored in England and Wales and Scotland indefinitely resulting in large banks of EM data. In all jurisdictions except very recently in the Netherlands, data are stored on the servers of the private sector equipment providers although it is universally owned by governments. Accessing these data requires the cooperation of past and present contractors in England and Wales and Scotland, which in the case of England and Wales caused delays in the data collection for this project.

European data protection legislation applies only if data are stored within the European Union. Using equipment providers whose servers are outside of the European Union therefore presents additional challenges for the use and storage of data. The Alcohol Abstinence Monitoring Requirement (AAMR) pilot in London implemented additional processes to safeguard data inevitably increasing the complexity of the project. These included anonymisation of data sent abroad with personal identifiers only being attached by the AAMR team once data were returned to the UK.

England and Wales are so far unique in that police forces operate their own schemes outside of the auspices of central government. These schemes are required to comply with data protection legislation but a number of practices are of concern. At least one

police force was reported to be providing crime data to a provider (rather than undertaking the process themselves) so that this can be compared with the tracks of monitored individuals. Police forces are also routinely using Google maps to check the whereabouts of monitored individuals.

Despite the significant data produced by EM, accessing data in a format useful for the research was challenging. In many cases, even basic statistical data are unavailable and in no jurisdiction is it routinely published. This hampered the current research and will inevitably limit future research activities as well as the public's understanding of EM. It also precluded any conclusions being drawn about the effectiveness of EM based on statistical analysis of quantitative data.

15. Staffing

The staff involved in the operation of EM and their professional qualifications and responsibilities differ between the Anglo and European models. The level of discretion vested in staff working with EM also differs with professionally qualified staff having higher levels of decision-making power. In England and Wales, EM staff are not professionally qualified probation staff and are required to have only basic qualifications. Previous research in England and Wales has shown that many were employed previously in unskilled occupations (Hucklesby, 2011). By contrast, in the Netherlands, professionally trained probation officers with additional training in EM oversee the EM process. There are three probation organisations who manage monitored individuals in the Netherlands. The Dutch Probation Service has 10 EM teams which include 60 EM specialists. These staff manage the same individuals throughout their time on EM and are responsible for case management as well as providing information to monitored individuals at all times including accompanying technicians to install equipment. The technical aspects of EM in the Netherlands are the responsibility of the Transportation and Support Service of the Prison Service for whom EM is just one of a number of tasks they perform. In the UK EM staff, who are employed by the private sector contractors, are responsible for both the technical aspects of EM and providing information and support but not supervision to monitored individuals. Monitored individuals are likely to have contact with a number of staff during their time on EM. Any continuity of staff is by accident not design. In Belgium, the involvement of Justice Assistants in EM is decreasing so that increasingly state employed EM staff are the only points of contact with monitored individuals. Justice Assistants are only routinely involved in cases involving individuals serving sentences of three years or more. In Belgium specialist mobile teams install the equipment and comprises a small group of 14 men which at times may be halved resulting in inadequate staffing levels. They receive no specific formal training but learn their craft on the job. Field staff work from home in several jurisdictions reducing both logistical difficulties related to geography and costs. Yet home working also increases data and equipment security concerns and limits contact between staff.

In all jurisdictions, except Scotland, the field staff are different from the control room staff. In Germany control room staff are trained social workers/probation officers whereas no such professional qualifications are required in England and Wales or Scotland. In England and Wales control room staff work exclusively on EM whereas in the Netherlands, overnight staff also deal with other types of call such as the monitoring of intruder alarms. Some home based EM staff in Scotland are employed

on a 'retained' basis i.e. they work only when required. This facilitates the efficient use of EM in remote rural locations.

EM field staff work in challenging environments so ensuring their safety is paramount. Staff in all jurisdictions reported that incidents were rare and mainly related to verbal rather than physical aggression. Lone working and night working, which predominates in England and Wales and Scotland, amplifies safety concerns. Procedures for risk assessments varied between jurisdictions and information to complete them may be unavailable. Several jurisdictions provided specific safety training to staff. All jurisdictions, except Germany, were known to have formal safety procedures in place. Yet, the extent to which staff felt able to, and would use, safety procedures differed within and between jurisdictions.

16. Council of Europe recommendation on electronic monitoring

In 2014 the Council of Europe issued a recommendation (Recommendation CM/Rec (2014) 4) on electronic monitoring in EU member states, containing 40 rules. This recommendation is not legally binding but is an influential form of 'soft law'. Its aim is 'to define a set of basic principles related to ethical issues and professional standards enabling national authorities to provide just, proportionate and effective use of different forms of electronic monitoring in the framework of the criminal justice process in full respect of the rights of the persons concerned' (Council of Europe, 2014: 2). The recommendation divides the rules into various sub-categories: basic principles; conditions of the execution of electronic monitoring at the different stages of the criminal justice process; ethical issues; data protection; staff; and work with the public, research and evaluation. The study measured the jurisdictions' adherence to the recommendation in two ways. One, by asking interviewees about their awareness and compliance with the rules; and two, by making independent assessments of compliance based on observations and examination of law, policy and practice relating to EM. This section discusses the findings.

Most interviewees were asked about their awareness of the recommendation and the extent to which it had influenced policymaking and practice in each of the five jurisdictions. Awareness of the recommendation was minimal. Few participants in any of the jurisdictions were aware of the recommendation. Most of those who were aware of it were in senior policymaking or practice leadership roles, some of whom had been involved in process of drafting the recommendation. The limited time between the publication of the recommendation (2014) and the interviews (2015) should, however, be considered.

In terms of compliance generally, the rules are rather vague and lack of specificity resulting in all jurisdictions broadly adhering to the recommendation. Nevertheless, more detailed examination suggests that compliance is sometimes more technical than real and that more needs to be done in order for jurisdictions to comply more fully with the 'spirit of the law'. The study also uncovered variations in the extent to which jurisdictions complied with particular rules.

Several examples exist of where broad adherence to specific rules was observed across the jurisdictions. For example, rule 5 calls for EM not to be executed in a manner which unnecessarily restricts the rights and freedoms of monitored individuals to a greater extent than provided for by decision-makers. In most jurisdictions there

are no clear violations of this rule – the exception being the 24 hour curfew imposed with pre-trial GPS tagging in Belgium. This study was not permitted access to data relating to the EM workforce and professional development in all jurisdictions but sufficient information was collected to suggest EM staff are competent and sufficiently trained in EM equipment installation and de-installation as rule 38 requires.

All jurisdictions also comply with the rules relating to data protection and information sharing (rules 29-32) but the strength of their adherence varies. As discussed previously, Germany has the strictest and strongest data protection amongst the jurisdictions in this study but interviewees pointed out this resulted from domestic legislation rather than the EU recommendation. England and Wales and Scotland have strict data protection measures and accountability for compliance with data handling requirements is overseen by government as a matter of contractual compliance. In Belgium, England and Wales and Scotland, clear procedures are in place to enable the police to access EM data. In the Netherlands, concerns were raised by interviewees about the lack of regulation of storage, use and sharing of data (rule 29) and the absence of data protection from EM staff training (rule 14). In England and Wales the use of data gleaned from the police use of GPS are completely unregulated.

For other rules, compliance was more variable, both within and between jurisdictions. For example, rule 1 states that the use, as well as the types, duration and modalities, of EM should be regulated by law. In Belgium, England and Wales and Scotland at least some of the uses of EM have a legal basis but the extent of legal regulation differs. In Belgium, the use of EM is partly regulated by law and partly by ministerial circular letters. In England and Wales, EMs use at the sentencing stages and HDC is defined by legislation. By contrast, the pre-trial use of EM has no specific legal basis relying instead on the general law relating to bail and there is no legal framework for the 'voluntary' EM schemes operated by police forces. In Scotland, each of the EM modalities, their duration and statutory exclusions, as well as the type of technology used, have a legislative basis. In Germany, the legal regulations are superficial. The Hesse model, which uses EM as a component of probation orders, is not regulated by law but is accepted by the courts. In the Netherlands, the use of EM is mostly regulated in 'Aanwijzingen' (indications for the public prosecution service).

Differences between the Anglo and European models are evident in relation to rule 9 which states that 'where private sector EM providers are involved in the implementation of decisions about the imposition of EM, the responsibility for the effective treatment of the persons concerned should remain with public authorities and be in line with international ethical and professional standards'. As previously discussed, Belgium, Germany and the Netherlands comply with this rule because the private sector's involvement in EM is limited primarily to the provision of equipment and technical support. By contrast England and Wales and Scotland may technically adhere to this rule but in practice, monitored individuals predominantly communicate with private sector contractors about EM related issues.

One of the recommendations of this study relates to the requirements to ensure that time spent on EM whilst awaiting trial is deducted from any sentence or measure (custodial or non-custodial) subsequently imposed. This is the crux of rule 17 which states that the manner of such a mechanism should be regulated by national law. As discussed above, Belgium and England and Wales comply with this rule with time on

EM being deducted from subsequent sentences of imprisonment but not other forms of punishment including subsequent periods of EM. In the Netherlands, whether time on EM is deducted from sentences is left to the discretion of judges.

Several rules draw attention to the need to personalise the use of EM in response to diversity and vulnerability and to ensure that protections against discriminatory practices exist. Rule 7 focuses on the need for 'no discrimination in the imposition or execution of EM on the grounds of gender, race, colour, nationality, language, religion, sexual orientation, political or other opinion, national or social origin, property, association with a national minority, or physical or mental condition' (Council of Europe, 2014: 4). Rule 26 requires decision-makers to take account of the age, disability and other relevant specific conditions or personal circumstances of individuals when deciding whether and under what modalities of EM may be imposed. All of the jurisdictions in this study broadly adhere to these rules as they are worded in the recommendation. However as discussed above, the study identified scope for improvement and development to further embed such considerations into policy and practice.

The final rule states that 'research and independent evaluation and monitoring shall be carried out in order to help national authorities take informed decisions regarding the ethical and professional aspects of the use of electronic monitoring in the criminal process' (rule 40, Council of Europe, 2014: 6). In all jurisdictions, there is a relative paucity of published data and independent and in-depth empirical research.

17. The future of electronic monitoring

There were clear expectations in all jurisdictions with the exception of Germany, that EM would be used more in the future. In Germany, where the expansion of EM was viewed as unlikely, a working party had been established to consider its future use and serious consideration was being given to using EM to reduce pre-trial detention. The growth in other jurisdictions was expected to take place in different ways via new modalities and technologies and increasing the use of existing modalities sometimes via widening eligibility criteria. Some of these changes were already taking place at the time of the research. In Belgium, for example, EM was made available as a standalone sentence in the Spring 2016 and consideration was being given to introducing EM for mentally ill convicted individuals (internees). In Scotland, a working party was actively considering new ways of using EM following a government public consultation (Graham and McIvor, 2016).

New and improved technologies open up further possibilities for expanding the use of EM. GPS was identified particularly as providing opportunities for a higher level of control and monitoring but there was a clear sense that RF technology also has advantages and should continue to play a significant role in EM going forward. The introduction of bi-lateral victim monitoring was being actively pursued in several jurisdictions and was eagerly anticipated by many. The requirement for biometric verification techniques is increasingly forming part of tenders to provide EM equipment.

Several jurisdictions expected changes to EM to transpire as a result of broader changes in the criminal justice process generally and specifically to the measures for which EM is employed, highlighting that drivers for change are not restricted to EM policy or technological developments.

No conclusions can be drawn about the efficacy of standalone and integrated models of EM but the historical boundaries between the Anglo and European models are being dismantled. Scotland is moving towards greater integration with social work whilst Belgium is expected to continue to increase its use of standalone EM measures. For example, a recent White Paper in Belgium (Geens, 2015) proposes that the boundary for differentiated levels of supervision is raised from the current three years to five.

The contrast between the Anglo and European models in relation to the extent of private sector involvement in EM appears unlikely to change. There was no appetite for change in England and Wales with policy-makers being particularly supportive of the continued involvement of the private sector citing both ideological and managerial rationales. Despite the extensive review of EM in Scotland, debates about the role of the private sector were not known to have taken place. By contrast, the Netherlands had increased state involvement in EM for mixture of ideological and pragmatic reasons. In Belgium despite underlying capacity issues raised by increased use of EM, greater private sector involvement in EM was not explicitly on the policy agenda.

18. Recommendations

It is recommended that consideration should be given to:

- the aims of EM to ensure that it is used according to the principles of proportionality and necessity, in the least intrusive way and incorporating support so that it positively influences individuals and assists them to lead meaningful lives
- implementing mechanisms to improve lines of communication and joint working between agencies
- the provision of alternative addresses for monitored individuals
- ways to better tailor curfew hours to the circumstances of monitored individuals and offences
- implementing progression and exit strategies including mechanisms to end EM earlier than planned when individuals are compliant
- policies and procedures relating to changes in circumstances to ensure a consistent and flexible graduated response
- procedures to ensure that informed consent is received from co-habitees independently and prior to the imposition of EM
- mechanisms to provide 24/7 support to monitored individuals
- breach policies to ensure a consistent, proportionate approach incorporating a graduated response to violations
- measures are taken to ensure consistent and fair treatment of individuals from diverse populations
- measures to ensure effective yet restricted data sharing between agencies with regard to data protection protocols
- policies and procedures to ensure staff safety including more effective communication of risk information and training in risk management.

19. References

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This report is one output from the European project: 'Creativity and effectiveness in the use of electronic monitoring as an alternative to imprisonment in EU member states' by Professors Anthea Hucklesby (University of Leeds, UK), Kristel Beyens (Vrije Universiteit Brussel, Belgium) Miranda Boone Utrecht Universiteit, the Netherlands), Frieder Dünkel (Universität Greifswald, Germany) and Gill McIvor (University of Stirling, Scotland) and Dr Hannah Graham (University of Stirling, Scotland). Further information about the project including briefing papers and full reports from each jurisdiction and a comparative report and briefing paper can be found at: www.emeu.leeds.ac.uk alternatively contact Professor Anthea Hucklesby (A.L.Hucklesby@leeds.ac.uk).