

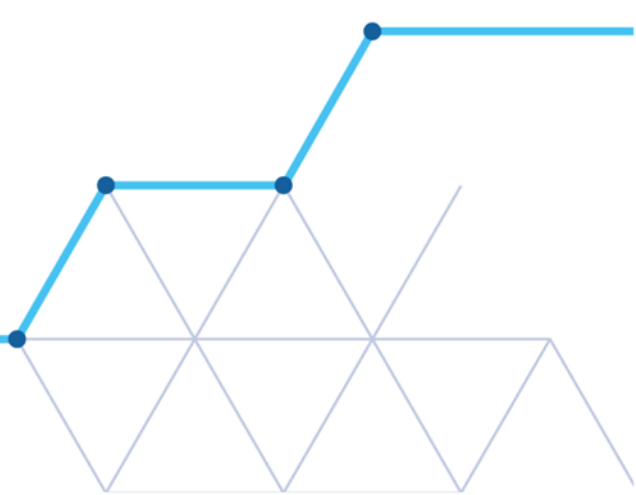


Ministry
of Justice

Process evaluation of the Global Positioning System (GPS) Electronic Monitoring Pilot: Quantitative findings

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Key findings

The Global Positioning System (GPS) location monitoring pilot operated between October 2016 and March 2018 in two police force regions. Seven cohorts¹ of wearers were eligible for the GPS tag during the pilot. Various conditions or restrictions could be imposed and monitored by the GPS tag, which depended on each cohort. This report aims to complement the independent qualitative process evaluation published in February 2019.² It presents findings from quantitative data collected during the pilot and describes management information on the activity over the course of the pilot, including outcomes and compliance, and survey findings on initial staff perceptions, and tag wearer expectations and experiences. Management information systems, as with any administrative recording system, are subject to possible errors with data entry and processing and it is possible that the views of those who completed the surveys (both staff and wearers) are not fully representative.

The key findings of this report are as follows:

- GPS tags were more frequently used during the 18-month pilot for the court imposed bail and post-release cohorts. The number of tags issued to those on a Community Order or Suspended Sentence Order was low.
- In total, 586 GPS tags were fitted, involving 570 tag wearers. The court imposed bail cohort accounted for 38% of tags issued; and post-release cohorts accounted for 58% of tags issued, and would represent the largest cohort at a given point.
- Most electronic monitoring requirements were well used during the pilot, with exclusion and curfew requirements being the most often used, for 71% and 49% of tags issued respectively.
- Overall, the median time on tag was 74 days, but there were some individuals tagged for substantially longer periods, potentially representing riskier individuals or, for the court imposed bail cohort, the time taken for their court case to complete.
- In total, there were 3,390 violations (potentially actionable tag alerts) recorded during the pilot involving 456 individuals (80% of those tagged).

¹ Cohorts included were: court imposed bail, Community Orders, Suspended Sentence Orders, Home Detention Curfew, release after recall, licence variation, and Parole Board releases.

² Ministry of Justice (2019) *Process Evaluation of the Global Positioning System (GPS) Electronic Monitoring Pilot*. <https://www.gov.uk/government/publications/process-evaluation-of-the-global-positioning-system-gps-electronic-monitoring-pilot>

- Forty-three per cent of violations were due to tracker shutdowns resulting from loss of the tag's battery power due to insufficient charging – potentially representing the 'burden' of wearers having to charge the battery daily, and 35% were curfew violations, many minor time violations within the threshold.³ Exclusion zone violations made up 20% of all violations.
- About three quarters of violation alerts were identified as potential breaches, and referred to Responsible Officers for a decision to be made regarding further action. This included verbal or written advice, as well as revocation (early removal of the tag) in some cases.
- Sixty-four per cent of all tags issued during the pilot were removed when the tagging period was completed as agreed with justice agencies; 31% were revoked for negative reasons such as breach; and 4% for neutral, positive or unknown reasons.⁴
- Regression analysis showed that cohort, planned order length, and number of previous cautions were independently associated with completing the monitoring period as planned. Individuals in the Home Detention Curfew cohort were more than three times as likely than those in the court imposed bail cohort to complete the tagging period successfully; increases in planned order length and the number of previous police cautions an individual had, reduced the likelihood of an individual completing their tagging period successfully.
- Analysis showed that the longer a wearer was on a tag the greater the chance of breach. By the 100-day point there was a probability of around 25% that an individual had not breached.
- Criminal justice agencies, including the police and probation services, made 229 external agency requests for information about tag wearer's locations over the duration of the pilot. The data generated by the tag enabled individuals to be ruled in or out as suspects in a crime in some instances.
- Most staff surveyed at staff awareness training sessions run before the GPS pilot commenced were positive about the expected benefits of GPS location monitoring, although views on the benefits to their work and impact on how they worked varied by job role.

³ Minor time violations of curfew were discussed with wearers, and formal action was taken when individuals met relevant breach thresholds (e.g. 15 minutes in total for court imposed bail).

⁴ For instance, health reasons, transfer to a Radio Frequency (RF) tag, or because tags were felt not to be needed any longer. Figures do not add to 100% due to rounding.

- Most wearers who responded to the tag fitting survey said that they understood the requirements of their tag and felt that wearing a tag would help them make positive changes in their lives. Views on the comfort of the tag and how it may be perceived by others were mixed.
- Overall, GPS location monitoring aims to support offender management, assist rehabilitation and introduce additional assurance that may give decision makers confidence to impose a non-custodial outcome for some offenders and defendants who would otherwise be in prison. Whilst no firm conclusion can be made on the last aim from the data in this report, findings in this report suggest that there was 'buy in' to the usefulness of the GPS tag, with tags viewed as supporting offender management and rehabilitation by staff and wearers.

1. Context and approach

This report presents findings based on analysis of surveys and management information from the GPS (Global Positioning System) location monitoring pilot, which operated between October 2016 and March 2018. The pilot aimed to examine how the availability and use of GPS tags affected the behaviour of offenders, defendants and decision-makers, to inform the rollout of GPS location monitoring. GPS location monitoring entails the fitting of an electronic tag, which can be used to monitor compliance with specific conditions or requirements. As well as the ankle tag, a stationary home beacon is installed in a wearer's approved address, and two chargers (one portable and one stationary) are provided to be used daily to ensure tags remain charged. The Pilot was run in two police force regions - BeNCH (Bedfordshire, Northamptonshire, Cambridgeshire and Hertfordshire), and the Midlands (Nottinghamshire, Staffordshire, Leicestershire and West Midlands).

Seven cohorts of wearers were eligible for the GPS tag during the pilot.⁵ They covered a range of offender groups as well as individuals on court imposed bail. GPS location monitoring aims to support offender management, assist rehabilitation and introduce additional assurance that may give decision makers confidence to impose a non-custodial outcome for some offenders and defendants who would otherwise be in prison. GPS location monitoring was available for prison leavers in both regions and, additionally, for individuals on court imposed bail, on Community Orders, and on Suspended Sentence Orders in the Midlands. The pilot rolled out over time, with the BeNCH region live from week 1 of the pilot and police force areas in the Midlands region rolling out over a longer timeframe. The prison release cohorts were added to those eligible for GPS tags in the Midlands region at about the half way point of the pilot. Further information about the cohorts eligible for the pilot is provided in **Annex A**.

Various conditions or restrictions could be imposed and monitored by the tag. These depended upon the cohort, and included:⁶

⁵ A further cohort of offenders subject to Integrated Offender Management (IOM) on automatic release from prison was introduced to the pilot in October 2017. They were not included in this evaluation due to the late stage at which the cohort joined the pilot.

⁶ For individuals on prison licence, legislation permitted a location monitoring requirement (standalone or 'trail' monitoring) to be imposed either as a condition in its own right or as a condition to monitor compliance with another requirement of the licence, such as an exclusion zone. For community sentences, legislation was commenced in the pilot areas to allow for location monitoring (i.e. standalone or 'trail' monitoring) to be imposed as a requirement in its own right. Legislation already permitted electronic monitoring to be used to monitor another requirement imposed on the order. For court imposed bail, location monitoring can only be imposed to monitor compliance with another requirement of the order.

Please refer to the Glossary for further information on monitoring requirements.

- **Exclusion zones** – to prohibit tag wearers from entering an area or address.
- **Attendance** – at a particular activity or appointment, such as a community offending behaviour programme.
- **Standalone monitoring**⁷ – which involved the monitoring of a tag wearer’s location, with data being available for view retrospectively by Responsible Officers.
- **Curfews**⁸ – which required wearers to be at a certain address during specified time periods. Curfew capability was added to the pilot in May 2017. This allowed curfews to be used alongside the location requirements introduced in the pilot, such as exclusion zones.

A recommendation for a GPS tag could come from an offender’s offender manager, a National Probation Service (NPS) offender manager in court, the police, the Crown Prosecution Service (CPS) or the Parole Board. Agencies with responsibility for the decision whether to use a tag or not varied according to wearer cohort and included the judiciary, a releasing prison’s Home Detention Curfew (HDC) decision-makers, Public Protection Casework Section (PPCS) of HMPPS, the Parole Board and probation. A Monitoring Centre for the pilot was set-up in Hertfordshire. It operated 24 hours a day and was run by police staff responsible for reviewing alerts generated by the tags or home beacons. The Monitoring Centre processed these alerts, and decided if an alert constituted a potential breach, or if the alerts were caused by technical issues. Where the alert constituted a potential breach, staff reported these within 30 minutes to Responsible Officers (who included police, NPS and CRC staff), who would consider what action to take. Responses to alerts varied according to the cohort of the wearer and the nature of the alleged non-compliance.⁹

Further, detailed information on the operation of the pilot and policy and research background to the pilot can be found in the independent qualitative process evaluation report: *Process Evaluation of the Global Positioning System (GPS) Electronic Monitoring Pilot*, published by the Ministry of Justice.¹⁰

⁷ Standalone monitoring was not available for individuals on court imposed bail. Standalone monitoring is now referred to as ‘trail monitoring’.

⁸ Curfew is included here where used alongside at least one other location monitoring condition, introduced in May 2017.

⁹ The Ministry of Justice developed detailed process maps for each cohort that outline the processes to deal with various types of non-compliance. These are available at: <https://www.gov.uk/government/publications/electronic-monitoring-global-positioning-system>.

¹⁰ <https://www.gov.uk/government/publications/process-evaluation-of-the-global-positioning-system-gps-electronic-monitoring-pilot>

1.1 Previous research on the GPS pilot

A previously published (2019) process evaluation of the GPS location monitoring pilot undertaken by NatCen Social Research (NatCen) aimed to understand views and experiences of the implementation and delivery of the GPS pilot as well as perceived impacts from the perspective of strategic stakeholders, delivery partners, GPS tag wearers and victims.¹¹

The key findings of the research were as follows:

- Partner agencies were enthusiastic about the prospect of using GPS location monitoring to help monitor and manage compliance with bail, sentence, and licence conditions.
- Clear and timely training and guidance for the staff involved in the setup and delivery of the pilot was highlighted as vital to effective delivery.
- The process of fitting tags was thought to have gone smoothly, although some concerns were raised in relation to the time taken to fit tags.
- GPS location monitoring was felt to support the effective management of offenders in the community and individuals on court bail in four key ways: supporting offender rehabilitation, facilitating risk management, informing decisions about whether a wearer should be recalled to custody or court, and providing evidence to either exonerate a wearer or link them to a crime.
- Key learning points included the importance of clear communication across and within partner agencies to enable a consistent approach to delivery, and the need for sufficient time and resources to develop the infrastructure to support the wider rollout of GPS location monitoring.

1.2 Research objectives

This report contains analysis of a range of data collected by the Ministry of Justice to understand the process of implementing the GPS pilot. It is intended to inform the rollout of GPS location monitoring and aims to complement the earlier research undertaken by NatCen.¹²

¹¹ Ministry of Justice (2019) *Process Evaluation of the Global Positioning System (GPS) Electronic Monitoring Pilot*. <https://www.gov.uk/government/publications/process-evaluation-of-the-global-positioning-system-gps-electronic-monitoring-pilot>

¹² Ibid.

The objectives for the quantitative process evaluation were to:

- Describe the activity over the course of the pilot, including outcomes and compliance with the tag, and use of the External Agency Requests system.
- Explore factors that affected successful completion of the tagging period.
- Describe initial perceptions of staff on the use of location monitoring; and the expectations and experiences of tag wearers.

1.3 Methodology

The report therefore covers a number of topics and draws upon a range of data sources, as set out below:

- **Management information** – gathered throughout the pilot which captured a range of data on individuals tagged during the pilot, including tag take up over time, tag wearer demographics, time on tag, outcomes, and compliance. Regression and survival analyses are presented based on matching management information gathered during the pilot with data on tag wearers from the Police National Computer (PNC) to explore factors that affected successful completion of the tagging period.

Management information was also collected on External Agency Requests – a system set up for agencies to request information on tag wearers' whereabouts from the Monitoring Centre.

It is important to note that these data have been extracted from management information systems which, as with any administrative recording system, are subject to possible error with data entry and processing. Due to sample size, firm conclusions cannot be drawn from some sub-group analysis.

- **Staff survey** – 493 surveys were completed by staff at staff awareness training events prior to the introduction of the pilot asking for their initial perceptions on the use of location monitoring and experience of using electronic monitoring. Findings are unlikely to be representative of all staff ultimately involved in making decisions about whether or not to use GPS location monitoring as only those who attended training sessions were surveyed and there were few respondents in some staff cohorts, such as police.

- **Surveys of tag wearers** – administered when tags were fitted and removed, asking respondents about their expectations (tag fitting survey) and experience (tag removal survey) of location monitoring. 395 responses were received for the tag fitting survey, a 67% response rate, and 74 to the tag removal survey, a 13% response rate. It is therefore possible that the views of those who completed the surveys are not representative of all tag wearers.

Further information on the data sources and methods used for this report are at Annex A.

1.4 Structure and content of this report

This report contains the following sections:

- **Pilot activity** – explores management information gathered throughout the pilot.
- **Outcomes and compliance with tagging conditions** – examines violations, including actions taken as a result, and revocation.
- **Factors affecting tagging outcomes** – explores factors that affected successful completion of the tagging period and breach.
- **External Agency Requests for data on tag wearers** – explores management information on the use of this system.
- **Staff awareness and perceptions of electronic monitoring** – explores initial perceptions of staff on the use of location monitoring prior to the introduction of the pilot.
- **Tag wearer surveys** – sets out findings from the tag fitting and tag removal surveys.
- **Conclusions and discussion**

The Glossary at Annex B sets out definitions and terminology used in this report.

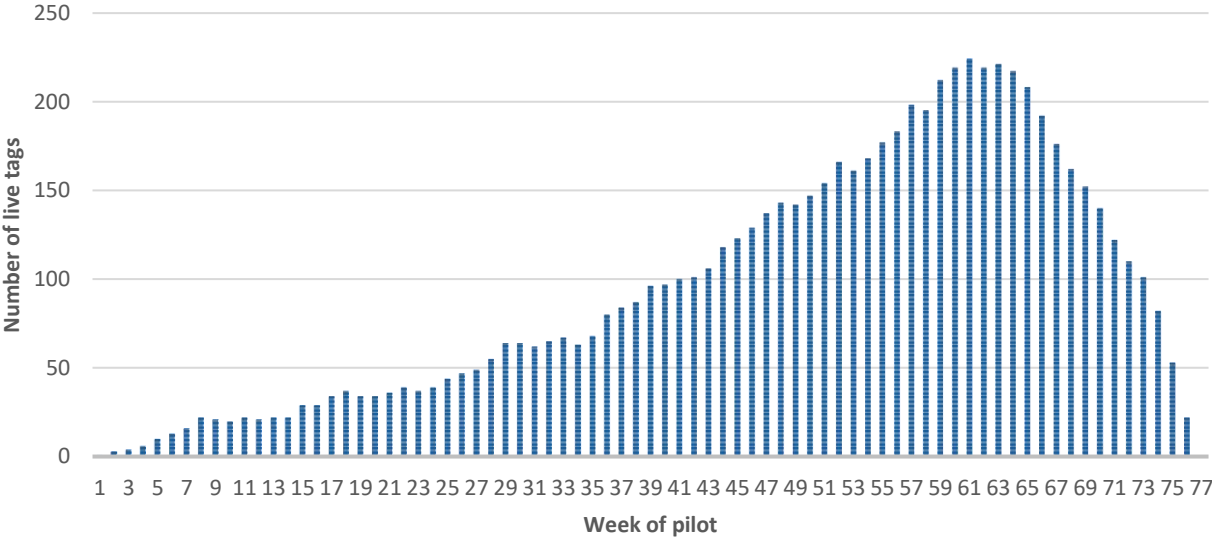
2. Pilot activity

This section is based on management information (MI) data gathered via the Monitoring Centre, which recorded how GPS location monitoring was used over the lifetime of the pilot.

2.1 Pilot volumes

Figure 2.1 shows ‘live’ weekly caseload over the lifetime of the pilot, i.e. the number of GPS tags in use during each week. The table below Figure 2.1 shows the timeline of changes to the pilot over its course. It shows that the number of GPS tags in use each week grew steadily over time, as the pilot was extended to new areas and cohorts and the pilot was embedded into local practice. It reached its peak at 224 during week 61 (week ending 10/12/2017) and no tags were fitted beyond week 64.¹³ This explains the decline in caseload seen from this point to the end of the pilot in week 77.

Figure 2.1: Live weekly caseload and pilot timeline, 16/10/2016 – 01/04/2018



Week 1	Week 2	Week 3	Week 5	Week 24	Week 32	Week 38	Week 64	Week 77
BeNCH areas start	Leicestershire start	Nottinghamshire start	Staffordshire start	West Midlands start	Curfew functionality added	Extension of prison cohorts to Midlands areas	Last day for tag fitting	All tags removed

Source: Pilot MI

¹³ The pilot lasted 537 days, but the tagging period i.e. the period during which tags were allocated was 477 days, with the number of new starts dropping to zero towards the end of the pilot as part of the work to bring the pilot to a successful close. This ensured that decision makers were not, for example, ordering for new tags to be fitted only a few weeks before they would have to be removed.

Over the course of the 18-month pilot, 586 tags were fitted, involving 570 tag wearers,¹⁴ comprising 50,033 tagging days in total.¹⁵ As set out in Section 1 of this report, GPS location monitoring was used across several cohorts. The largest single cohort was court imposed bail (220 instances, 38% of the total number of tags issued), and the smallest was Suspended Sentence Orders (7 instances, 1% of the total).¹⁶ Most tagging instances (75%) took place in the Midlands rather than in BeNCH, where courts did not participate in the pilot (Table 2.1).

Table 2.1: Distribution of tag wearers across cohort and police force area

		Court imposed bail	Community Order	Suspended Sentence Order	Home Detention Curfew	Release after recall	Licence variation	Parole Board release	Area total
BeNCH	Bedfordshire	Not Applicable – no court based availability in BeNCH area.			4	13	6	11	34
	Northants				6	18	8	14	46
	Cambridgeshire				9	10	4	9	32
	Hertfordshire				4	12	19	1	36
Midlands	Leicestershire	56	0	0	1	8	2	4	71
	Notts	77	4	1	7	19	3	15	126
	Staffordshire	40	12	0	7	9	3	10	81
	West Midlands	47	1	6	49	24	15	18	160
Total tagging instances		220	17	7	87	113	60	82	586

Source: Pilot MI. Total tagging instances in BeNCH: 148; total tagging instances in the Midlands: 438

Live caseload (the caseload at a given point of time) varied by cohort, as shown by Table 2.2, which shows the maximum live cohort size over the duration of the pilot. Whilst the court imposed bail cohort accounted for the largest number of tags issued during the pilot, the court imposed bail, Home Detention Curfew, release after recall and Parole Board release cohorts had the same or similar maximum live caseload size.

Combined, the post-release cohorts¹⁷ accounted for 58% (342) of tags issued during the pilot (see Table 2.1) and Table 2.2 likewise shows that, combined, they would be the largest cohort at a given point. This reflects factors including time on tag, with the post-release

¹⁴ Some individuals were tagged more than once, hence the number of tags fitted exceeds the number of individuals.
¹⁵ The pilot was extended from October 2017 to enable GPS location monitoring to be used with an additional cohort of offenders who were subject to Integrated Offender Management on automatic release from prison. 98 individuals were tagged on this cohort. They were, however, outside of the scope for the pilot evaluation, and are excluded from this report.
¹⁶ Of the 244 tags issued by courts (court imposed bail, Community Orders and Suspended Sentence Orders), 129 were by the Crown Court, and 115 were by Magistrates’ courts.
¹⁷ Combining the Home Detention Curfew, release after recall, licence variation and Parole Board release cohorts.

cohorts spending longer periods of time on tag than the court imposed bail cohort (see Table 2.6), and the court imposed bail cohort not being included in the BeNCH area.

Table 2.2: Live maximum caseload during the pilot, by cohort

Cohort	Live maximum caseload
Court imposed bail	47
Community Order	7
Suspended Sentence Order	3
Home Detention Curfew	48
Release after recall	48
Licence variation	33
Parole Board releases (Indeterminate Public Protection cases (IPPs) and Lifers)	48
TOTAL	224

Source: Pilot MI. Live caseload calculated each week

2.2 Tag wearer demographics

Nearly all tags were issued to men (97%) (Table 2.3). Comparison with national criminal justice statistics suggests that tags may have been disproportionately more likely to be allocated to men than women, although the reasons for this are unclear.¹⁸ The average age of all wearers to whom tags were issued was 33. Female tag wearers tended to be older, with an average age of 38, than male tag wearers, whose average age was 33.¹⁹

Seventy-four per cent of tagging instances involved White tag wearers, 10% were Black / Black British, and 9% were Asian / Asian British, with the remaining 8% including individuals with mixed ethnic backgrounds, other ethnicities, and ethnicity not stated/recorded.²⁰ These proportions roughly reflect those observed in the prison population.²¹

¹⁸ Offender management statistics show that in 2017 and 2018, 90% of first receptions to prison, including remand receptions, were male. This comparison measure was used because GPS location monitoring aimed to be used as an alternative to custody. Prison Receptions:2018 spreadsheet, Table A2_1i. <https://www.gov.uk/government/statistics/offender-management-statistics-quarterly-october-to-december-2018>

¹⁹ We have not been able to compare this to the national picture as data on receptions to custody do not provide age breakdowns by gender.

²⁰ Figures do not total 100% due to rounding.

²¹ Prison population statistics showed that at 30 June 2017 (this date is used rather than more recent data to align with the pilot timeframe), 73% of prisoners self-identified as White, 12% as Black, 8% as Asian, 4% as Mixed, and 1% as Chinese/Other; and for 1% of prisoners' ethnicity was not stated/recorded. Annual Prison Population: 2018 spreadsheet, Table A1_9i. <https://www.gov.uk/government/statistics/offender-management-statistics-quarterly-october-to-december-2018>

Table 2.3: Tagging instances by gender and ethnicity

	Male	Female	Total
Tagging instances	566	20	586
Average (mean) age	33	38	33

Ethnicity	Tagging instances	Total	Percentage	
Asian / Asian British	50	0	50	9%
Black / Black British	58	2	60	10%
Mixed	24	0	24	4%
White	413	18	431	74%
Other	11	0	11	2%
Prefer not to say	9	0	9	2%
Missing	1	0	1	0%

Source: Pilot MI. Note: Columns may not total 100% due to rounding.

2.3 Electronic monitoring requirements

As described in Section 1, GPS location monitoring covered a range of electronic monitoring requirements, and one or more could be used for each tagging instance. Table 2.4 shows the extent to which different GPS capabilities were used by cohort. It shows that, in total, across the 586 tagging instances, 877 monitoring requirements were set. Exclusion zones were the single largest category, representing 47% of requirements used, followed by curfew requirements (33%; curfew capability was added to the pilot in May 2017). Other than the Home Detention Curfew, licence variation and Parole Board release cohorts, exclusion was the most commonly used requirement for all other cohorts.

Table 2.4: Use of different monitoring requirements by cohort²²

Monitoring requirements used in total	Court imposed bail	CO*	SSO*	Home Detention Curfew	Release after recall	Licence variation	Parole Board release	Total
Exclusion	214 (79%)	17	6	37 (21%)	67 (39%)	23 (25%)	50 (34%)	414 (47%)
Curfew	49 (18%)	1	2	87 (50%)	58 (34%)	31 (34%)	62 (43%)	290 (33%)
Standalone**	1*** (0%)	0	1	48 (28%)	44 (26%)	36 (40%)	32 (22%)	162 (18%)
Attendance	6 (2%)	0	0	1 (1%)	2 (1%)	1 (1%)	1 (1%)	11 (1%)
Total	270 (100%)	18	9	173 (100%)	171 (100%)	91 (100%)	145 (100%)	877 (100%)

Source: Pilot MI. Table adds to 877 because a tagging instance could entail more than one monitoring requirement. *CO = Community Order; SSO = Suspended Sentence Order. **Standalone location monitoring is also referred to as trail monitoring; ***Standalone monitoring was not available for individuals on court bail. It is likely that this was due to an error in recording.

²² Column percentages may not total 100% due to rounding. Percentages have not been provided for the Community Order and Suspended Sentence Order cohorts due to small numbers.

Table 2.5 shows the extent to which different GPS monitoring requirements were used, either alone or in combination with each other across the different cohorts. An exclusion requirement on its own was the most common GPS monitoring requirement used, with 40% of tags issued involving this requirement, and was largely used with the court imposed bail cohort. The use of both a curfew and exclusion requirement was the next most common combination of requirements imposed, used in 30% of tagging instances, mainly with the court imposed bail and post-release cohorts (curfew capability was added to the GPS pilot in May 2017 to be used alongside the other location requirements introduced in the pilot, such as exclusion zones). Overall, 71% of tags issued included an exclusion requirement, around half (49%) a curfew requirement, and just over a quarter (28%) involved a standalone requirement (which was not available for individuals on court imposed bail).²³

Table 2.5: Type of GPS location monitoring requirements by cohort²⁴

GPS capabilities per tag event	Court imposed bail	CO*	SSO*	Home Detention Curfew	Release after recall	Licence variation	Parole Board release	Total
Exclusion	168 (76%)	16	4	0	28 (25%)	9 (15%)	11 (13%)	236 (40%)
Curfew / Exclusion	45 (20%)	1	2	37 (43%)	39 (35%)	14 (23%)	38 (46%)	176 (30%)
Curfew / Standalone**	0	0	0	48 (55%)	18 (16%)	17 (28%)	24 (29%)	107 (18%)
Standalone**	1*** (0%)	0	1	0	26 (23%)	19 (32%)	8 (10%)	55 (9%)
Curfew / Attendance	3 (1%)	0	0	1 (1%)	1 (1%)	0	0	5 (1%)
Attendance	2 (1%)	0	0	0	1 (1%)	1 (2%)	0	4 (1%)
Curfew	0	0	0	1**** (1%)	0	0	0	1 (0%)
Curfew / Attendance / Exclusion	1 (0%)	0	0	0	0	0	0	1 (0%)
Attendance / Exclusion	0	0	0	0	0	0	1 (1%)	1 (0%)
Total	220 (100%)	17	7	87 (100%)	113 (100%)	60 (100%)	82 (100%)	586 (100%)

Source: Pilot MI; *CO = Community Order; SSO = Suspended Sentence Order. **Standalone location monitoring is also referred to as trail monitoring. ***Standalone monitoring was not available for individuals on court bail. It is likely that this was an error in recording. ****Curfew was to be used alongside other GPS requirements. It is likely that this was an error in recording.

2.4 Time on tag

Table 2.6 shows the breakdown of median, minimum, and maximum number of days on tag by pilot cohort.²⁵ It shows that GPS location monitoring was used to monitor relatively short periods as well as longer spells, with notable ranges in minimum and maximum time on tag.

²³ Standalone location monitoring is also referred to as trail monitoring.

²⁴ Column percentages may not total 100% due to rounding. Percentages have not been provided for the Community Order and Suspended Sentence Order cohorts due to small numbers.

²⁵ Median measures are presented here rather than mean measures due to wide ranges in time on tag, which included outlying values.

Overall, the median time on tag was 74 days, but this varied by cohort. Those on Suspended Sentence Orders (36 days) and court imposed bail (51 days) had relatively low median time on tag. The longest median times on tag were 111 days for the Parole Board release cohort, and 109 days for the Community Order cohort.

The minimum time on tag mainly indicates instances where tags were removed early. It should be noted that tags could be removed early for various reasons, including due to breaches not directly related to GPS monitoring, or positive or neutral reasons²⁶ (see Chapter 4 for more detail on tagging outcomes). The maximum time on tag was 534 days within the Parole Board release cohort, followed by 413 days in the release after recall cohort, potentially reflecting the monitoring of riskier individuals. The court imposed bail cohort had a maximum time on tag of 314 days, although the median time was much lower, so this was an outlier. For this cohort, length on tag likely reflected the time taken for their court case to be determined.

Table 2.6: Time on tag (median, minimum and maximum) by cohort (tagging instances)

Cohort	Median time on tag (days)	Minimum time on tag (days)	Maximum time on tag (days)	Cohort size
Court imposed bail	51	0**	314	220
Community Order	109	1	184	17
Suspended Sentence Order	36	0**	227	7
Home Detention Curfew	98	1	136	86*
Release after recall	78	5	413	113
Licence Variation	84	7	238	60
Parole Board release	111	3	534	82
Overall	74	0**	534	585*

Source: Pilot MI; *One Home Detention Curfew case was excluded due to missing data. **Two individuals were recorded as having their tags removed within 24 hours of fitting.

Table 2.7 shows median time on tag by gender. Men had longer median time on tag than women (77 days compared to 29 days). The reasons for this are unclear, although may in part have been due to differences in the cohort mix of women and men tagged: while just over half of tagging instances involving women were in the court imposed bail cohort, which had lower median periods of time on tag, just under two fifths of tagging instances involving men were in this cohort. Additionally, a greater proportion of women than men had their tag removed due to breach or other negative reasons (see Table 3.6), although the small number of women on the pilot means firm conclusions cannot be drawn from this sub-group analysis.

²⁶ For instance, health reasons, transfer to a Radio Frequency (RF) tag, or because tags were felt not to be needed any longer.

Table 2.7: Time on tag by gender (tagging instances)*

	Male	Female	Total
Total for whom time on tag data available	565	20	585
Median time on tag	77 days	29 days	74 days

Source: Pilot MI; *One case was excluded due to missing data.

3. Outcomes and compliance with tagging conditions

This section presents analysis of data gathered on compliance with location monitoring, including levels and types of violations, responses to violations, and tagging outcomes. As set out in Section 1, a Monitoring Centre operated 24 hours a day and was run by police staff responsible for reviewing alerts generated by tags. The monitoring centre received alerts of alleged non-compliance for all wearers and investigated each one to decide on the most appropriate way to deal with the issue, or if the alerts were caused by technical issues. Responses to alerts varied according to the cohort of the wearer and the nature of the alleged non-compliance.²⁷ Where the alert constituted a potential breach, staff reported these within 30 minutes to Responsible Officers (who included police, NPS and CRC staff), who would consider what action to take.

3.1 Violations Data

Alerts generated by the tags were recorded as potentially actionable tag alerts, 'violations', by the Monitoring Centre. The Monitoring Centre processed these alerts, and decided if an alert constituted a potential breach, or if the alerts were caused by technical issues.²⁸ Over the course of the pilot there were 3,390 'violations' recorded by the Monitoring Centre, relating to 456 individual tag wearers.²⁹

The mean average number of violations (potentially actionable tag alerts) was around 6 per tag wearer, although this masked a large range: while 114 individuals had no recorded violations, the highest number of violations per individual was 66³⁰ – see Figure 3.1. The median average number of violations per individual was four. There were no statistically significant differences in number of violations based on gender.

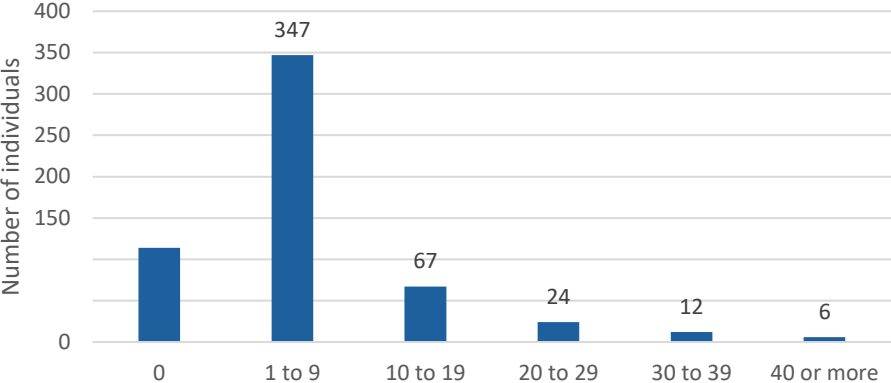
²⁷ The Ministry of Justice developed detailed process maps for each cohort that outline the processes to deal with various types of non-compliance. These are available at: <https://www.gov.uk/government/publications/electronic-monitoring-global-positioning-system>.

²⁸ A substantial filtering process was in place before violations were recorded to ensure that 'noise' from the tag was removed, leaving only those violations understood to be genuine. However, a very small number of violations were erroneous tag alerts that did not count as violations upon investigation.

²⁹ The violations dataset did not record revocations where breaches did not relate to GPS conditions per se (e.g. re-arrest). It also did not record the release after recall and licence variation cohorts separately (combining under recall licence). Matching the management information and violations datasets in order to provide the violations breakdown per cohort, which was done for the tag wearer outcomes analysis, resulted in a loss of violations due to matching attrition. The full violations data are therefore reported in this section to give the most complete picture overall.

³⁰ Most of the 66 violations in this case were tag shutdowns, indicating the individual did not charge their tag. Their GPS tag was ultimately revoked.

Figure 3.1: Number of violations per tag wearer³¹



Source: Violations Data

The number of violations varied by cohort³² and is shown in Table 3.1. The largest number of violations was seen on the release after recall/licence variation cohort. Looking at violations per tagging instance indicates that more violations on average were seen on the Parole Board release cohort. It is likely that this was driven by the much higher than average length of time on tag that was seen for this cohort (see Table 2.6).

Because some cohorts had longer tagged periods than others, giving greater opportunities for violations, violation rates were produced per 100 tagging days in order to compare cohorts. This shows that the highest rate per 100 tagging days was observed in the Home Detention Curfew cohort, followed by the Community Order cohort. The Parole Board release cohort however, had a lower violation rate than the Community Order and Home Detention Curfew cohorts. Those on court imposed bail had the lowest rate of violations per 100 tagging days.

³¹ Based upon violations on first tagging period only (where tag wearers had more than one period on tag).
³² Unlike in other sections, figures for the release after recall and licence variation cohorts are collated as the violations dataset this section is based on did not record these cohorts separately.

Table 3.1: Violations across cohorts

	Violations	Tagging instances	Violations per tagging instance	Actual tagging days	Violations per 100 tagging days
Total	3,390	586	5.78	50,033	6.78
Court imposed bail	700	220	3.18	13,798	5.07
Community Order	149	17	8.76	1,786	8.34
Suspended Sentence Order	32	7	4.57	543	5.89
Home Detention Curfew	642	87	7.38	7,468	8.60
Release after recall / licence variation	1,113	173	6.42	15,044	7.39
Parole Board release	754	82	9.20	11,394	6.62

Source: Violations Data

3.2 Types of violation and outcomes

Table 3.2 presents details of violations by cohort. As mentioned above, these ‘violations’ included technical issues as well as alerts that required action to be taken.

Forty-three per cent of the 3,390 recorded violations were tracker shutdowns caused by power loss from flat batteries in the tag due to insufficient charging (batteries needed charging by wearers each day), with curfew violations the next largest violation type (35%). Exclusion zone violations made up 20% of all violations.

Table 3.2: GPS violation types by cohort³³

	Violation type						Total
	Exclusion Zone	Attendance	Curfew	Tracker Shutdown	Home unit tamper	Strap Tamper	
Court imposed bail	321 (46%)	2 (0%)	81 (12%)	255 (36%)	0	41 (6%)	700 (100%)
Community Order	33 (22%)	0	9 (6%)	95 (64%)	0	12 (8%)	149 (100%)
Suspended Sentence Order	2	0	6	23	0	1	32
Home Detention Curfew	34 (5%)	0	428 (67%)	167 (26%)	0	13 (2%)	642 (100%)
Release after recall / licence variation	157 (14%)	2 (0%)	322 (29%)	618 (56%)	0	14 (1%)	1,113 (100%)
Parole Board release	139 (18%)	1 (0%)	326 (43%)	284 (38%)	1 (0%)	3 (0%)	754 (100%)
Total	686 (20%)	5 (0%)	1,172 (35%)	1,442 (43%)	1 (0%)	84 (2%)	3,390 (100%)

Source: Violations Data

³³ Row percentages may not total 100% due to rounding. Percentages have not been provided for the Suspended Sentence Order cohort due to small numbers.

As mentioned earlier, violations were recorded either as ‘technical’ violations (i.e. instances of violations of GPS conditions according to monitoring technology, but on investigation were not deemed to be a potential breach requiring action), or ‘potential breaches’. For curfew requirements, minor time violations of curfew were discussed, and formal action was taken when individuals met relevant breach thresholds (e.g. 15 minutes in total for court imposed bail).

Of total recorded violations, seven were recorded as technical alerts and 851 were recorded as curfew time violations within the threshold, as shown in Table 3.3.³⁴ In almost three quarters of instances (n=2,507), the violation was identified as a potential breach and resulted in the Monitoring Centre referring the case to the Responsible Officer.

Table 3.3: GPS violation types by outcome³⁵

	Violation type						Total
	Exclusion Zone	Attendance	Curfew	Tracker Shutdown	Home unit tamper	Strap Tamper	
Referral made to the RO*	679	5	323	1,432	1	67	2,507 (74%)
Curfew time violation within threshold**	-	-	844	6	-	1	851 (25%)
Referral to Enforcement Officer***	5	-	2	3	-	12	22 (1%)
Warning letter***	-	-	3	-	-	-	3 (0%)
Alert (technical) – no violation	2	-	-	1	-	4	7 (0%)
Total	686	5	1,172	1,442	1	84	3,390 (100%)

*Responsible Officer **Below time threshold ***For single requirements

Source: Violations Data

3.3 Breaches

Table 3.4 shows what action was taken in the 2,507 violations identified as potential breaches that were referred to Responsible Officers and Table 3.5 shows this by cohort. The data shows that actions taken varied according to the cohort of the wearer and the nature of the potential breach, and could include revoking the tag (removing the tag before the scheduled end of monitoring). For almost two thirds (62%) of potential breaches, a phone call or verbal advice was undertaken by the Responsible Officer. In 18% of potential breaches, no further action was recorded as the decision made by the Responsible Officer. Upon closer inspection, in the majority of these, a submission (e.g. reports or witness statements) was sent to the Offender Manager or the police (in the case of court imposed bail cases), and most of the cases related

³⁴ Two were recorded as both.

³⁵ Column percentages may not total 100% due to rounding.

to the release after recall/licence variation, Parole Board release and court imposed bail cohorts (see Table 3.5). Revocation, the removal of the tag before the scheduled end of monitoring, was the result of 63% of the 301 breaches where enforcement action was taken by the Responsible Officer, primarily involving the court imposed bail cohort. In just over a third (34%, n=102) of breaches where enforcement action was taken, monitoring continued as before. For the latter, this mostly related to the court imposed bail cohort (92 of the 102).

Table 3.4: Action taken for potential breaches by the Responsible Officer

	Number	Proportion
Total potential breaches	2,507	100%
Phone call / verbal advice	1,551	62%
Warning letter	206	8%
No further action taken by Responsible Officer	449	18%
Further action taken by RO (enforcement action)	301	12%
Of which:		
- <i>Revoked with custody</i>	(171)	(57%)
- <i>Revoked without custody</i>	(20)	(7%)
- <i>Monitoring continues w/added requirements</i>	(8)	(3%)
- <i>Monitoring continues as before</i>	(102)	(34%)

Note: the revocations set out later in this Chapter do not tally with the figures presented above on completion rates, since several violations can be used to evidence a revocation. Hence, a single revocation can be the outcome after several breaches.

Source: Violations Data. Column percentages may not total 100% due to rounding.

Table 3.5: Action taken for potential breaches by the Responsible Officer, by cohort

	Court imposed bail	CO*	SSO**	HDC***	Release after recall/ Licence variation	Parole Board release	Total
Total violations	700	149	32	642	1,113	754	3,390
Total potential breaches	667	146	28	288	880	498	2,507
Phone call / verbal advice	370	91	13	183	594	300	1,551
Warning letter	9	9	2	43	84	59	206
No further action taken by Responsible Officer	105	25	4	52	150	113	449
Further action taken by RO (enforcement action)	183	21	9	10	52	26	301
- <i>Revoked with custody</i>	79	3	9	8	51	21	(171)
- <i>Revoked without custody</i>	9	6	0	1	0	4	(20)
- <i>Monitoring continues w/added requirements</i>	3	4	0	1	0	0	(8)
- <i>Monitoring continues as before</i>	92	8	0	0	1	1	(102)

*CO = Community Order. **SSO = Suspended Sentence Order. ***HDC = Home Detention Curfew.

Note: the revocations set out later in this Chapter do not tally with the figures presented above on completion rates, since several violations can be used to evidence a revocation. Hence, a single revocation can be the outcome after several breaches.

Source: Violations dataset

3.4 Recorded tagging outcomes

Of 586 tags issued, 377 (64%) were removed when the tagging period was completed, as agreed with justice agencies. The remaining 209 (36%) of tags were removed before the scheduled end of monitoring, which is referred to as “revocation”. It should be noted that tags could be revoked for various reasons, including due to breaches not directly related to GPS monitoring.

3.5 Revocations

166 (28%) of the tags issued were revoked because of a breach, 18 (3%) for reasons recorded as ‘other’ but which also reflect negatively on the subject’s behaviour, such as further arrest or recall, and 25 (4%) for neutral, positive³⁶ or unknown reasons. This puts the rate of negative revocations at 184 (31% of tags issued). Table 3.6 shows tagging outcomes overall and by gender. Whilst a greater proportion of women than men had their tag revoked (9 out of 20), the small number of women on the pilot means it would be unwise to draw wider conclusions from this finding.

Table 3.6: Tagging outcomes with revocation rate, by gender³⁷

	Male	Female	Total	Percentage
Total tagged	566	20	586	
Planned tagging period completed	366	11	377	64%
Tag revoked due to breach/other negative reason	175	9	184	31%
Tag revoked for other (positive/neutral/unknown) reason	25	0	25	4%

Source: Pilot MI

Table 3.7 shows tagging outcomes by cohort. It shows that the release after recall cohort had a notably higher rate of negative revocations (42%) than other cohorts; while for Home Detention Curfew the rate was notably lower than all other cohorts (20%).

³⁶ For instance, health reasons, transfer to a Radio Frequency (RF) tag, or because tags were felt not to be needed any longer.

³⁷ Column percentages may not total 100% due to rounding.

Table 3.7: Tagging outcomes with revocation rate, by cohort³⁸

	Planned tagging period completed	Tag revoked due to breach/other negative reason	Tag revoked for other (positive/neutral/unknown) reason	Cohort Size
Court imposed bail	150 (68%)	66 (30%)	4 (2%)	220
Community Order	12	5	0	17
Suspended Sentence Order	3	4	0	7
Home Detention Curfew	66 (76%)	17 (20%)	4 (5%)	87
Release after recall	56 (50%)	48 (42%)	9 (8%)	113
Licence variation	39 (65%)	18 (30%)	3 (5%)	60
Parole Board release	51 (62%)	26 (32%)	5 (6%)	82
Total	377 (64%)	184 (31%)	25 (4%)	586

Source: Pilot MI

The Home Detention Curfew cohort had the highest violation rate per 100 tagging days (see Table 3.1), but lowest revocation rate for breach or other negative reasons (see Table 3.7). As many of the violations were minor time violations within the threshold, less than half (45%) of the violations by this cohort were identified as potential breaches and referred to the Responsible Officer. As with other cohorts, a phone call/verbal advice was the most common action taken by the Responsible Officer in response to potential breaches for the Home Detention Curfew cohort (see Table 3.5).

³⁸ Row percentages may not total 100% due to rounding. Percentages are not provided for the Community Order and Suspended Sentence Order cohorts due to small numbers.

4. Factors affecting tagging outcomes

The first part of this section uses regression analysis to explore the factors which affected whether tag wearers reached the end of their tagging period ‘successfully’, i.e. without the tag being removed early due to breach or other reasons.

Regression is an analytical approach which aims to identify the association of individual factors with a given outcome, independent of other factors. Data from the Police National Computer (PNC) was matched with management information on tag wearers, enabling information on the offending history (where relevant) of wearers prior to their tagging date to be included in the analysis.³⁹ It was intended this would provide more meaningful analysis than the pilot data alone, by including measures which might have an impact upon outcomes, such as the number and nature of previous offences. It also enabled the calculation and inclusion of an OGRS4⁴⁰ score in the model; this score predicts risk of reoffending.

It is important to note that the explanatory strength of any regression model is always limited to the measures that it includes. In this study, data on a number of factors understood to be relevant to rehabilitative outcomes – such as relationships, employment, accommodation etc. – were not available.

4.1 Findings: factors associated with successful completion of tagging

Logistic regression was undertaken to explore factors independently associated with the successful completion of a tagging period. A successful outcome was significantly associated with:

- **Specific cohort** – individuals in the Home Detention Curfew cohort were more than three times as likely to complete the tagging period successfully than the court imposed bail cohort, controlling for other variables.
- **Planned order length** – each day increase in the original order length was associated with a small but statistically significant reduced likelihood of success (0.3%), indicating that longer orders were associated with worse outcomes than shorter ones.

³⁹ More detail on the matching process is set out in Annex A. It resulted in a full set of data for 530 tag wearers. The resulting dataset is described by Annex Table A.2.

⁴⁰ The Offender Group Reconviction Scale 4 (OGRS4) is a predictor of proven reoffending based only on static risks – age, gender, current offence and criminal history.

- The **number of previous police cautions**⁴¹ – each caution received by individuals prior to tagging was associated with an 18% reduced likelihood of successful completion of tagging period.

The output from this model is at Table A.3 in Annex A.

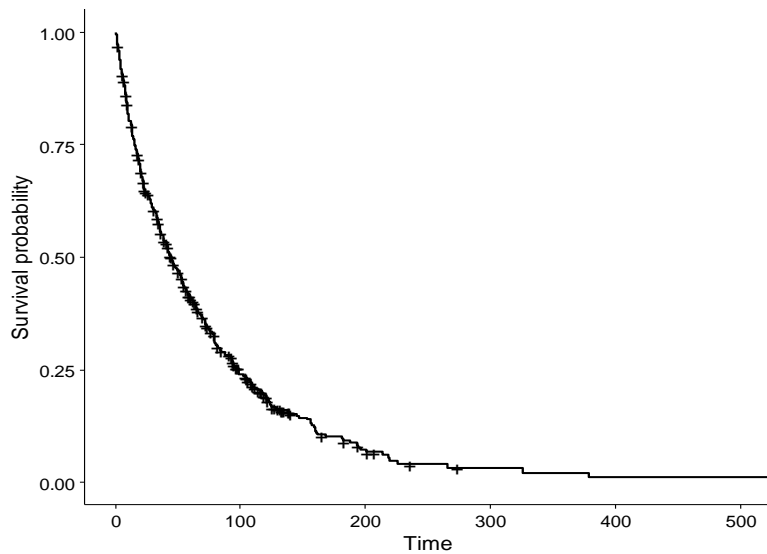
4.2 Survival analysis

“Survival” analysis was also undertaken on the pilot data to explore time to first breach – the first violation (where relevant) that the Monitoring Centre referred to the Responsible Officer as a potential breach - regardless of whether this breach led to the tag being revoked or not. This analysis plotted the proportion of tag wearers who had not breached over time. Further information on the approach to the survival analysis is provided in Annex A.

The “survival” plot for all tag wearers is provided in Figure 4.1 and shows that the longer a wearer was on a tag the greater the chance of breach. Understandably, the longer an individual is tagged, the greater the opportunity there is for breach. Also, as set out in Chapter 3, curfew violations were the second most common violation type, but minor time violations were not referred to the Responsible Officer as potential breaches until they passed a certain threshold. These would accrue over time. By the 100-day point there was a probability of around 25% that an individual had not breached. The curve flattens out from that point, which is indicative of a reducing risk of first breach after that point. After around 200 days, there was a probability of around 7% that individuals had not breached.

⁴¹ Data on previous cautions was provided by the PNC.

Figure 4.1: Survival plot (all tag wearers) – time (in days) to first breach



Survival profiles were plotted for all pilot cohorts. Most follow a similar pattern (see Figures A.1 to A.5 in Annex A), although they vary in terms of when the survival curve ‘flattens’. The Home Detention Curfew cohort, however, has no prominent curve – implying that the risk of first breach remained similar throughout their release period. This may reflect a balancing of issues including adjusting to a GPS tag as well as the potential ‘cost’ of breaching (as the Home Detention Curfew period continues, the ‘cost’ - in terms of the number of days an individual would be returned to prison for - decreases).

4.3 Factors associated with likelihood of (first) breach

Regression analysis was used to explore which factors were associated with first breach. As noted earlier in this chapter, the explanatory strength of any regression model is always limited to the measures that it includes and data on a number of factors understood to be relevant to rehabilitative outcomes – such as relationships, employment, accommodation etc. – were not available.

Only two factors were found to be significantly associated with better survival:

- The **planned order length**, with each day increase in planned order length associated with a reduced likelihood of breaching for the first time of 0.4% each day.
- The **tag wearer’s age**, with older tag wearers having a reduced likelihood of breaching for the first time: each additional year of age was associated with a 4% reduction in likelihood of breach.

The output from the modelling is in Table A.4, Annex A.

5. External Agency Requests for data on tag wearers

The pilot put a system in place to enable Responsible Officers to request routine retrospective location data on tag wearers who they managed. For data protection reasons, this was limited to information necessary to monitor compliance. However, if a Responsible Officer or other stakeholder wanted access to location data that they could not routinely access the relevant principles within data protection legislation needed to be considered to ensure any disclosure was lawful and necessary. For this purpose and to ensure requests were assessed in a consistent, auditable way the pilot operated an external agency request (EAR) process.

The EAR process required Responsible Officers to explain why they needed the requested information, and the Monitoring Centre considered each request on a case by case basis. Data was only released when justified, proportionate and necessary. The Monitoring Centre encouraged stakeholders to discuss requests with them prior to a formal application to ensure only appropriate requests were made. This resulted in inappropriate requests being dropped, and 100% of requests recorded by the EAR system were approved.⁴²

A total of 229 external agency requests were made over the course of the pilot. While the EAR database recorded the **individual officer** making the request for information in all cases, information on the **agency** that requestors worked for was less complete: this showed that 42% of requests were made by the police; 27% were made by probation services, but agency information was missing for 31% of requests.

Requests were made for the following reasons:

- Suspicion that the wearer was involved in a crime (41%);
- To check compliance and investigate potential breach in conditions (33%);
- To verify a wearer's location (18%);
- To assist an arrest (7%);
- Other (2%).⁴³

⁴² It was not known how many inappropriate requests were filtered out in this way. Further information on the EAR process is available in the GPS pilot toolkit: (NOMS, 2016) Electronic Monitoring Global Positioning System Toolkit for partner agencies: <https://www.gov.uk/government/publications/electronic-monitoring-global-positioning-system>.

⁴³ Base = 229. Percentages may not add to 100% due to rounding.

Where requests were due to suspicion the wearer was involved in a crime (n=93), 38% of wearers were recorded as having been ruled out as a result of this information being provided, and 10% were ruled in as a potential suspect. For over half of request outcomes (53%), there was no information recorded about whether the information provided had enabled the individual to be either ruled out or in.⁴⁴

About a fifth of tag wearers had EAR requests made about their whereabouts (22%; 131 out of 586 wearers). For those tag wearers about whom requests were made, these were predominantly single requests (64%), although 36% of wearers received multiple requests (in the main, this meant two or three requests for information, but there were a maximum 13 requests for one wearer). Requests were spread across all cohorts as shown by Table 5.1.

Table 5.1: Number, proportion and rate of requests made for wearers, by cohort⁴⁵

Cohort	No. of requests	Cohort size	Request Rate per 10 wearers	Percentage of requests
Court imposed bail	33	220	1.5	14%
Community Order	12	17	7.1	5%
Suspended Sentence Order	1	7	1.4	0%
Home Detention Curfew	7	87	0.8	3%
Release after recall	92	113	8.1	40%
Licence variation	31	60	5.2	14%
Parole Board releases	52	82	6.3	23%
Total	228	586	3.9	100%

Source: EAR dataset

Table 5.1 shows that the cohort with the highest rate of requests per 10 tag wearers was the release after recall cohort (8.1 requests per 10 tag wearers). This contributed to requests about this cohort accounting for a disproportionately large proportion (40%) of all requests.⁴⁶ In relation to this, it is worth noting earlier findings that those on release after recall had the highest negative revocation rate. There was a relatively low rate of requests made regarding individuals in the Home Detention Curfew, Suspended Sentence Order, and court imposed bail cohorts, although some of the findings here may be driven by actual time spent on tag (which was notably lower than average for individuals on court imposed bail and on Suspended Sentence Orders).

⁴⁴ Percentages may not add to 100% due to rounding.

⁴⁵ Base = 228. One enquiry was not linked to a specific tag wearer. Column percentages may not total 100% due to rounding.

⁴⁶ Other factors which will have contributed will have been the fact that the cohort represented almost a fifth of all tagging instances, as well as the fact that individuals in this cohort were tagged for slightly longer than the median average.

6. Staff awareness and perceptions of electronic monitoring

To capture initial stakeholder perceptions of GPS location monitoring, a short survey was distributed at training sessions held between September 2016 and May 2017. These surveys were distributed by the pilot team at the end of the training session, and therefore responses are expected to have been informed by the content of these sessions. Findings are unlikely to be representative of all staff ultimately involved in making decisions about whether or not to use GPS location monitoring as only those who attended training sessions were surveyed and there were few respondents in some staff cohorts, such as police.

There was a total of 493 responses to the survey (Table 6.1). The largest number of responses came from individuals who recorded themselves as National Probation Service (NPS) staff or court staff, with fewer responses from the judiciary, prison staff, and Community Rehabilitation Companies (CRCs). Few responses were received from individuals who classified themselves as legal representatives, police officers, or police staff. A relatively large number of respondents classified themselves in the ‘other’ category.⁴⁷

Table 6.1: Number and proportion of staff who completed the survey, by reported job role

Respondent category	Number	Percentage of all respondents ⁴⁸
Police staff	1	0%
Police officer	3	1%
Legal representative	4	1%
CRC staff	60	12%
Prison staff	67	14%
Judiciary	69	14%
Court staff	112	23%
NPS staff	126	26%
‘Other’	51	10%
Total	493	100%

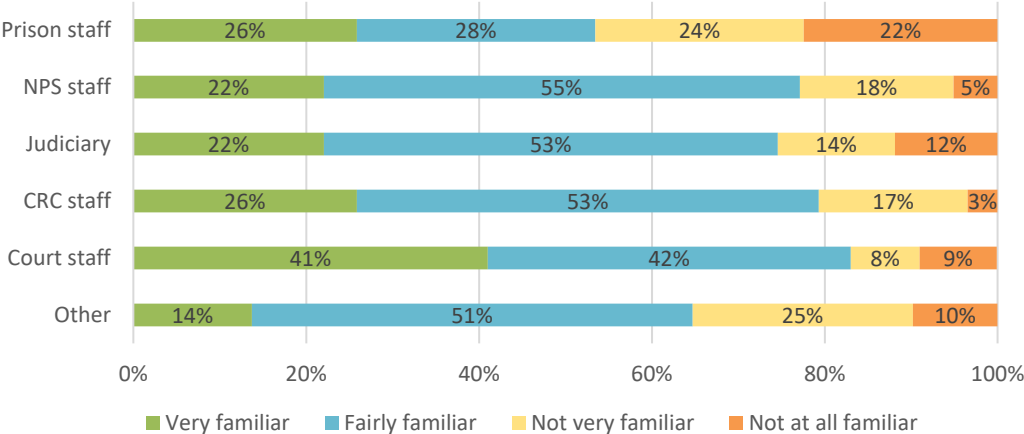
Source: Staff Awareness Survey

⁴⁷ Respondents who ticked the ‘other’ classification were asked to state their job role. Responses were from individuals who worked for various agencies including the Parole Board (n=10; 2% of all respondents) and the Public Prosecution Casework Section (PPCS) (n=15; 3% of all respondents). Other categories included here had fewer respondents, and included the Crown Prosecution Service (CPS), Legal Advisors, Magistrates, and Defence Advocates.

⁴⁸ Percentages may not add to 100% due to rounding.

The majority of staff who responded to the survey were very experienced, with 69% reporting that they had been in their job roles for seven or more years. Relatively few (8%) staff reported having less than a year’s experience in their role. Staff who had been in post for one year or more were asked about their familiarity with electronic monitoring (either GPS or Radio Frequency enabled curfew monitoring). Staff reported high levels of familiarity, with 74% of all respondents to this question stating they were fairly or very familiar with using electronic monitoring to manage offenders. Familiarity with electronic monitoring was highest among court staff (83%), followed by CRC staff (79%), and lowest among prison staff (54%).

Figure 6.1: Respondent familiarity with electronic monitoring, by job role⁴⁹



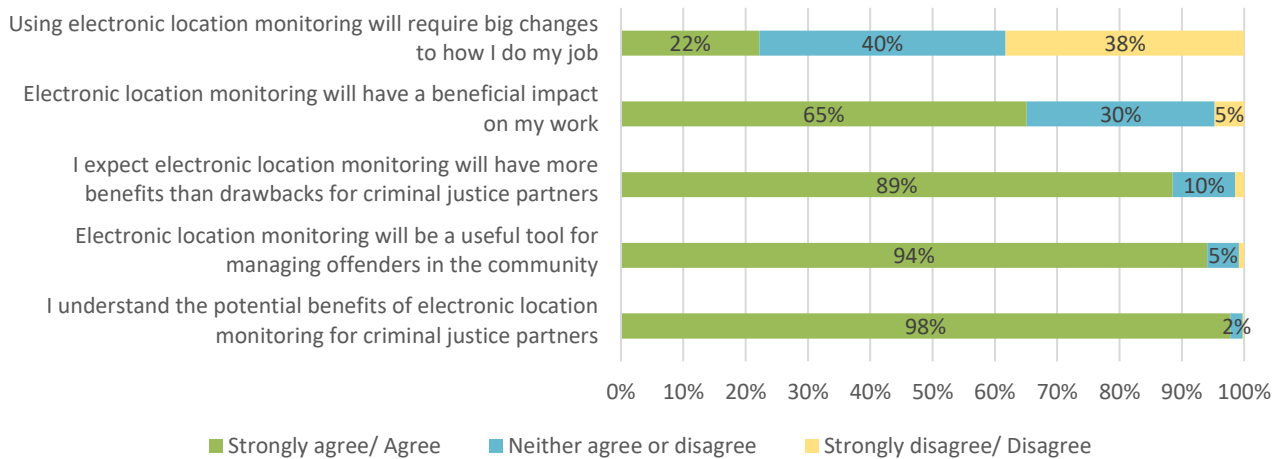
Source: Staff Awareness Survey. Base: Staff in post for over one year. Number of responses: 446

Staff were asked to rate their agreement with five statements on electronic location monitoring. Their views were generally positive about the benefits and usefulness of location monitoring, as can be seen in Figure 6.2. Almost all respondents agreed that they understood the potential benefits of electronic location monitoring for criminal justice partners (98%). Responses were similar across job roles. 94% of staff agreed that electronic location monitoring would be a useful tool for managing offenders in the community. Again, responses to this question were similar across job roles, ranging from 89% of court staff to 98% of NPS staff. Most respondents expected that electronic location monitoring would have more benefits than drawbacks for criminal justice partners (89%). This did, however, range from 78% among the Judiciary to 97% of prison staff. Almost two thirds of all respondents felt that electronic location monitoring would have a beneficial impact on their work (65%).

⁴⁹ Due to low participant numbers (see Table 6.1), police staff, police officers and legal representatives were classified within the ‘other’ category for analysis of questions by job role. Percentages may not total 100% due to rounding.

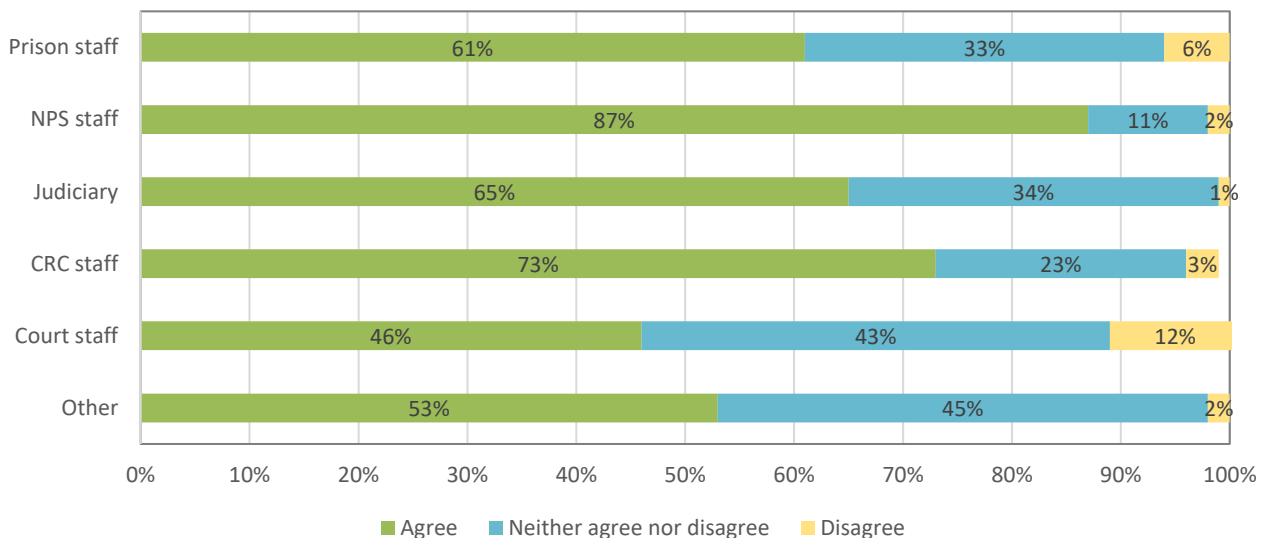
Proportions varied somewhat according to job role, as shown by Figure 6.3. While 87% of NPS staff agreed, just 46% of court staff agreed.

Figure 6.2: Proportion of respondents who 'agreed', 'neither agreed or disagreed', or 'disagreed' with statements on the use of electronic location monitoring⁵⁰



Source: Staff Awareness Survey. Number of responses varied by question.

Figure 6.3: Proportion of each job role which 'agreed', 'neither agreed nor disagreed', or 'disagreed' with the statement that electronic location monitoring would have a beneficial impact on their work⁵¹



Source: Staff Awareness Survey. Number of responses: 487.

⁵⁰ 'Agree' collates strongly agree and agree responses. 'Disagree' collates strongly disagree and disagree responses.

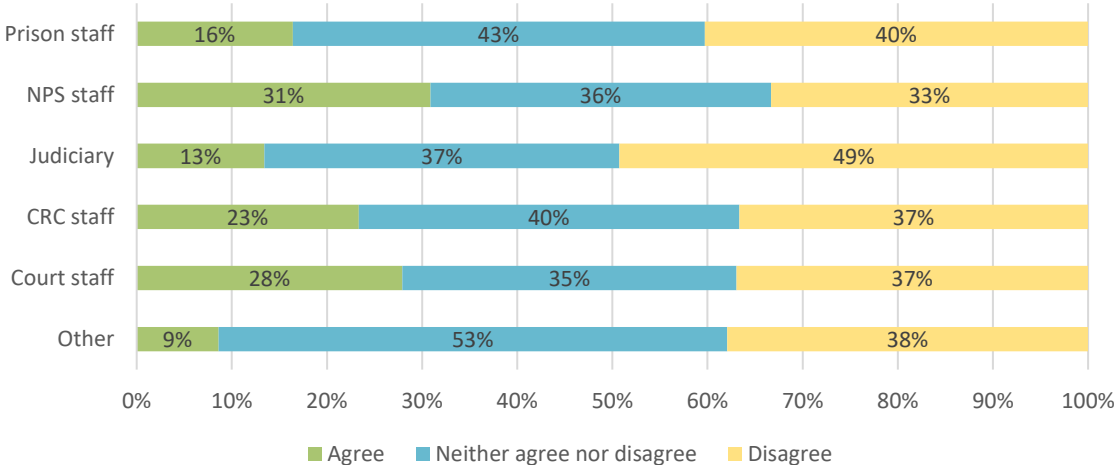
Percentages may not total 100% due to rounding.

⁵¹ Due to low participant numbers, police staff, police officers and legal representatives were classified among the 'other' category for analysis of questions by job role.

Percentages may not total 100% due to rounding.

As illustrated by Figure 6.2, 22% of staff overall agreed that electronic location monitoring would require big changes to how they did their job, 40% neither agreed nor disagreed, and 38% disagreed. Figure 6.4 shows that responses to this question varied by job role. It should be noted firstly that across all staff groups, a substantial proportion of individuals neither agreed nor disagreed with this statement. The judiciary were most likely to feel that electronic location monitoring would not require big changes to how they did their job (49%). NPS staff, however, were most likely to feel that electronic location monitoring would require big changes to how they did their job (31%).

Figure 6.4: Proportion of each staff role which ‘agreed’, ‘neither agreed nor disagreed’, or ‘disagreed’ with the statement that electronic location monitoring would require big changes to how they did their job⁵²



Source: Staff Awareness Survey. Number of responses: 486.

Overall, initial perceptions by staff on the use of location monitoring were generally positive, but this did vary by role depending on how location monitoring may affect their role.

⁵² ‘Agree’ collates strongly agree and agree responses. ‘Disagree’ collates strongly disagree and disagree responses.

Due to low participant numbers, police staff, police officers and legal representatives were classified among the ‘other’ category for analysis of questions by job role.

Percentages may not total 100% due to rounding.

7. Tag wearer surveys

To understand tag wearers' perceptions of GPS location monitoring, a short survey was administered by the field teams for all wearers to complete during tag fitting and removal appointments.

Participation in these surveys was voluntary. While there were 395 responses to the tag fitting survey (a 67% response rate), there were 74 responses to the tag removal survey (a 13% response rate). It is therefore possible that the views of those who completed the surveys are not representative of all tag wearers.⁵³ Respondents were also able to decline from answering individual questions. The extent to which this occurred varied by question, and is noted below each chart. This may have introduced a further source of bias. Non-response was excluded from percentage calculations, in line with standard survey reporting practice. Some tag fitting survey findings are presented by cohort, but not for all cohorts due to some small cohort sizes. Response rates by cohort are provided in Annex Table A.1.

7.1 Findings: tag fitting survey

Respondents were asked about their prior experience of electronic monitoring. Almost half of respondents (48%) said they had not worn an electronic tag before; 46% had worn a tag between 1-3 times previously, and six percent had worn a tag four or more times before.⁵⁴ Analysis by cohort showed that respondents on parole were least likely to have worn a tag previously: 62% had never worn a tag compared with 54% of court imposed bail cases, 41% of Home Detention Curfew cases, and 32% of those released after recall or on the tag as a licence variation.⁵⁵

During the tag fitting appointment, respondents were asked to rate their agreement with five statements on GPS location monitoring. Responses are shown in Figure 7.1. Positively, almost all respondents reported understanding what was expected of them in order to comply with their conditions (96%). Analysis by cohort indicated that 99% of respondents on court imposed bail agreed with this statement; those on release after recall or licence variation were the cohort least likely to agree with this statement, although the vast majority

⁵³ Findings may be 'biased', although it is impossible to say in what way. Those with particularly positive or particularly negative views may have been more likely to participate. It is unclear why the tag removal survey had a particularly low response rate. It is plausible that this stemmed from tag wearers' eagerness not to prolong their tag removal appointment.

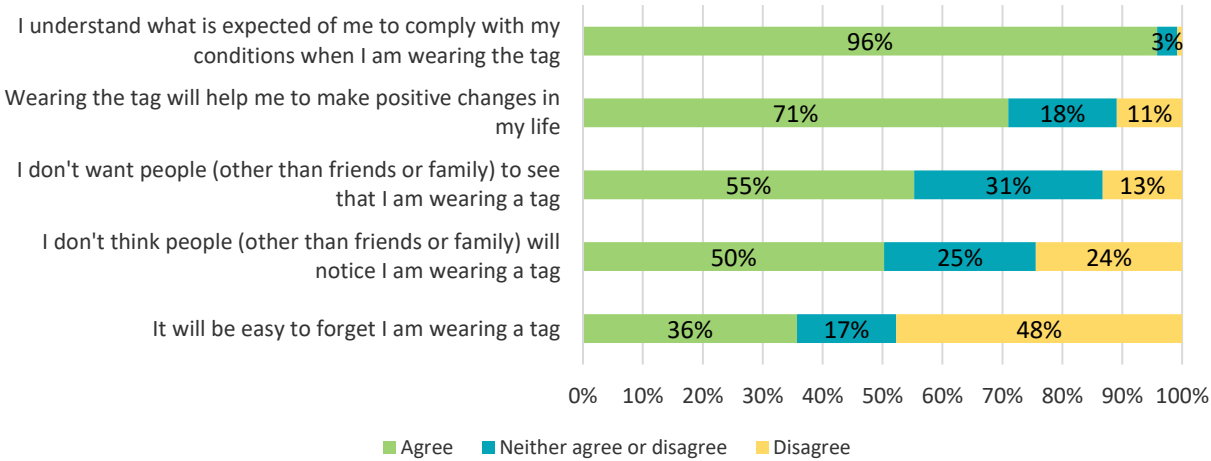
⁵⁴ 9 respondents (2% of all respondents) did not answer this question.

⁵⁵ Analysis by cohort was only conducted when there were more than 50 responses for that cohort; therefore, Community Order and Suspended Sentence cohorts are omitted.

still agreed that they knew what was expected of them (89%). In addition, most respondents (71%) felt that wearing a tag would help them make positive changes in their lives (only 11% disagreed with this statement). Analysis by cohort found that agreement was highest among Home Detention Curfew cases (78%), followed by court imposed bail cases (74%), and lowest among those on release after recall or with the tag imposed as a licence variation (59%). As mentioned in Chapter 1, one of the aims of GPS location monitoring was for the tag to provide additional assurance that may give decision makers confidence to impose a non-custodial outcome for some offenders and defendants who would otherwise be in prison. This may have been the case for most of the GPS pilot cohorts, so wearers may have viewed the tag more positively as the alternative was custody. However, for those on licence, who would have automatically been released from custody, some may have viewed the tag as an additional restriction.

Views on wearing the tag and how it may be viewed by others were mixed. Just over half of respondents agreed that they did not want people (other than friends or family) to see that they were wearing a tag (55%). Respondents reported mixed feelings about whether it would be easy to forget they were wearing a tag, with 36% agreeing and 48% disagreeing.

Figure 7.1: Proportion of respondents who ‘agreed’, ‘neither agreed nor disagreed’, or ‘disagreed’ with statements on wearing a tag⁵⁶



Source: Tag fitting survey⁵⁷

⁵⁶ ‘Agree’ collates strongly agree and agree responses. ‘Disagree’ collates strongly disagree and disagree responses.

Percentages may not total 100% due to rounding.

⁵⁷ Non-response to these statements varied between 3% and 12% of respondents. As noted above, non-response has been excluded from percentage calculations.

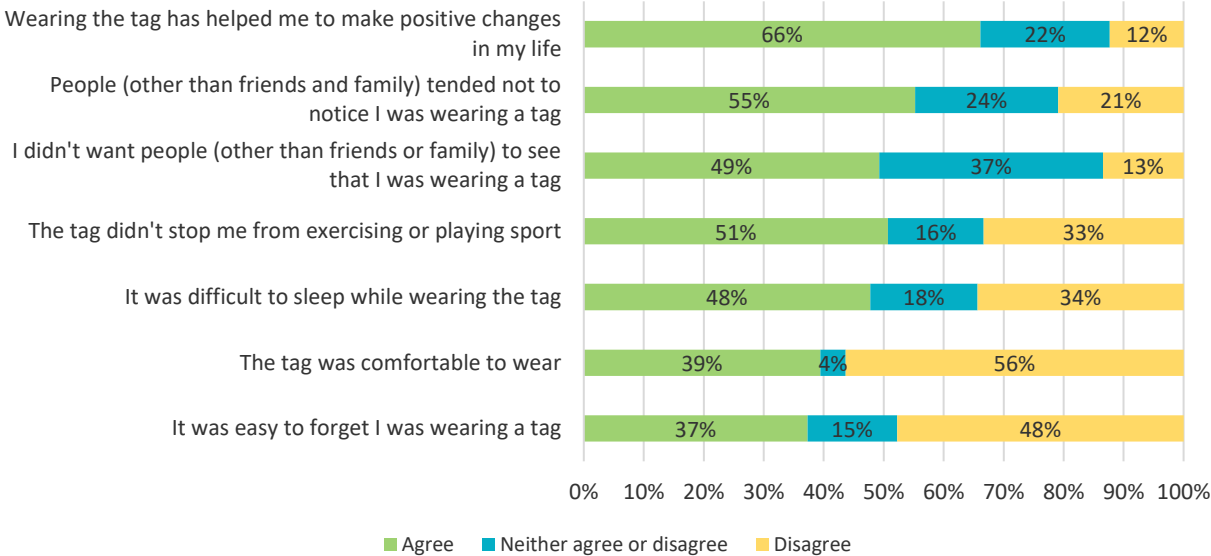
7.2 Findings: tag removal survey

As noted above, there was a 13% response rate for the tag removal survey, which means that findings from this survey are unlikely to represent the views of tag wearers in the pilot. Analysis of findings by cohort was not carried out due to the low response rate.

During the tag removal appointment, respondents were asked about their overall experience of their time on tag. Around half of the survey respondents (52%) reported that their experience was positive overall, with 23% reporting a neutral experience, and 23% reporting a negative experience. One percent of respondents said they did not know.⁵⁸

Respondents were also asked to rate their agreement with seven statements about wearing the tag. Responses indicated that tag wearers had mixed feelings, as shown by Figure 7.2.

Figure 7.2: Proportion of respondents who ‘agreed’, ‘neither agreed or disagreed’ or ‘disagreed’ with statements about their time on tag⁵⁹



Source: Tag removal survey⁶⁰

⁵⁸ Five individuals did not answer this question (7% non-response). Percentages may not total 100% due to rounding.

⁵⁹ ‘Agree’ collates strongly agree and agree responses. ‘Disagree’ collates strongly disagree and disagree responses.

Percentages may not total 100% due to rounding.

⁶⁰ Non-response to these questions ranged from 4% to 12%. As noted above, non-response has been excluded from percentage calculations.

Respondents were still fairly positive about the tag helping them to make positive changes to their lives. Views on the comfort and impact of wearing the tag and on other people knowing about it were more mixed. On specific aspects of wearing the tag:

- Two-thirds of wearers (66%) felt that the tag had helped them make positive changes in their lives. It is perhaps worth noting here that at the time of tag fitting, 71% anticipated that their time on tag would help them make positive changes in their lives. This finding is encouraging, although the low response rate for the tag removal survey means it would be unwise to draw wider conclusions.
- Just over half (56%) of respondents did not feel that the tag was comfortable, while 39% agreed that it was comfortable.
- 37% of respondents agreed that it was easy to forget that they were wearing a tag, but almost half (48%) disagreed with this statement.
- Just over half (51%) of respondents agreed that the tag did not stop them from exercising or playing sport, although a third (33%) said it did.
- Half of respondents (48%) felt it was difficult to sleep while wearing the tag, while 34% disagreed with this.
- Half of respondents (49%) reported that they did not want people (other than friends or family) to see that they were wearing a tag.
- Just over half (55%) agreed that people tended to not notice the tag; a fifth (21%) disagreed with this statement.

Respondents were also able to add other views on their experience of wearing a tag, using an open free-text response. Just over a third (36%, n=27) of respondents commented here. This represented 5% of tagging instances, and so their views are unlikely to be representative. Despite the low response rate, the themes mentioned here were similar to those identified by the qualitative evaluation.⁶¹

- The most commonly mentioned issues were the physical impact of the tags, such as tags being too big or uncomfortable, or restricting clothing choices or ability to play sport.
- Some concerns were mentioned regarding the organization of the tagging process, including the time taken to remove tags.
- Finally, tag wearers reported technical issues: these mostly concerned signal failure and difficulties with charging batteries.

⁶¹ Ministry of Justice (2019) *Process Evaluation of the Global Positioning System (GPS) Electronic Monitoring Pilot*. www.gov.uk

Respondents were also asked whether certain other people had acted differently towards them because of the tag. 42% of respondents provided some response to this question (n=31; 5% of tagging instances). Around a half of those who responded reported that nobody acted any differently towards them, but a few reported that friends, members of the public, colleagues and family members had viewed the tag negatively.

8. Conclusions and discussion

GPS tags were more frequently used during the 18-month pilot for the court imposed bail and post-release cohorts. In total, 586 GPS tags were fitted, involving 570 tag wearers, with the live caseload growing steadily over time, as the pilot was extended to new areas and cohorts and was embedded into local practice. The court imposed bail cohort accounted for the largest proportion of tags issued, accounting for 38% of tags issued; although the post-release cohorts combined accounted for 58% of tags issued and would represent the largest cohort at a given point, reflecting factors such as the longer median time on tag seen for the post-release cohorts. Whilst only available in the Midlands police region, the number of tags issued to those on a Community Order or Suspended Sentence Order was low. The proportion of tags issued to women (3%) also seemed lower than would be expected given the proportion of prison receptions who are female (10% in 2017). The reasons for potential low use of GPS tags with these cohorts are unclear. It is recommended that this is monitored during the rollout of GPS tagging. Potentially, further engagement with courts may be required to promote the use of GPS tags for the Community Order and Suspended Sentence Order cohorts.

Most electronic monitoring requirements were well used during the pilot. Different location monitoring capabilities of the GPS tags came into play for the cohorts, as would be expected, for example, around 97% of tags issued to the court imposed bail cohort had an exclusion requirement (either alone or in combination with other monitoring requirements) compared to 38% of tags issued to the licence variation cohort. Overall, exclusion and curfew requirements were the most common electronic monitoring requirements used, with 71% of tags issued including an exclusion requirement and around half (49%) a curfew requirement. Although, it should be noted that the curfew capability was added partway through the pilot and could only be used alongside another requirement (most often an exclusion or standalone (trail monitoring) requirement). Just over a quarter (28%) of tags issued included a standalone requirement, which was not available for individuals on court imposed bail.

The time spent on tag varied by cohort. Those on Suspended Sentence Orders and court imposed bail had relatively low median times on tag (36 days and 51 days respectively). The longest median time on tag was 111 days for the Parole Board release cohort and 109 days for the Community Order cohort. Overall, the median time on tag was 74 days, but there were some individuals tagged for substantially longer periods, potentially representing riskier individuals or, for the court imposed bail cohort, time taken for their court case to complete.

In total, there were 50,033 tagging days during the pilot and 3,390 violations (potentially actionable tag alerts) recorded during the pilot involving 456 individuals (80% of those tagged). Forty-three per cent of violations were due to tracker shutdowns resulting from loss of the tag's battery power due to insufficient charging – potentially representing the 'burden' of wearers having to charge the battery daily, and 35% were curfew violations, many minor time violations within the threshold. About three quarters (n=2,507) of violations were identified as potential breaches and passed on to the Responsible Officer. The action taken varied according to the nature of the potential breach. In most cases a verbal warning or letter was issued, but revocation (early removal of the tag) occurred in some instances.

Sixty-four per cent of all tags issued during the pilot were removed when the tagging period was completed as agreed with justice agencies; 31% were revoked for negative reasons such as breach; and 4% for neutral, positive or unknown reasons. This varied by cohort, with the Home Detention Curfew cohort having the lowest rate of negative revocations (20%). This was reflected in regression analysis that showed that the Home Detention Curfew cohort were more than three times as likely to complete their tagging period as planned than the court imposed bail cohort, controlling for other factors. Whilst the Home Detention Curfew cohort had had the highest violation rate per 100 tagging days, a substantial proportion of these were curfew time violations within the threshold and therefore were not referred to the Responsible Officer as breaches in line with established processes.

Regression analysis found a small, but significant negative association between planned order length and successful completion of the tag and may indicate the supposed 'burden' of GPS monitoring, where longer orders increase the 'costs' of monitoring for the individual (e.g. cognitive/emotional, socioeconomic and physical) and increased opportunity to breach, including accumulating curfew time violations, or be recalled or re-arrested. Alternatively, the result may indicate that riskier individuals were generally given longer periods on tag even when controlling for different cohorts – i.e. it is a result of tag allocation within the cohorts. The fact that we control in the modelling for some static aspects of risk enables us to be more confident that this finding was not an artefact of tag allocation, but we cannot totally discount it. At the same time, longer planned order lengths were associated with a reduced likelihood of a first breach. This implies that those with longer orders overall, who potentially could be riskier individuals, had a lower risk of breaching, but those breaches were more likely to lead to revocation of the GPS tag.

The number of cautions an individual had received prior to being tagged was associated with their likelihood of successful completion of the tag, but prior offences was not significantly

associated. This suggests that prior cautions are a better indicator of potentially non-compliant behaviour than prior offences. While the data do not allow us to investigate this further, it could be that the number of cautions indicates a deeper offending history. If the cautions are conditional, their presence may be evidence of individuals' experience of a monitoring regime which may subsequently have influenced their behaviour on the GPS tag. It is important to note the limitations of the regression analyses here, in that the explanatory strength of any regression model is always limited to the measures that it includes. Data on a number of factors understood to be relevant to rehabilitative outcomes – such as relationships, employment, accommodation – were not available.

Staff and tag wearers were generally positive regarding their expectations of the benefits of electronic location monitoring. It is perhaps worth bearing in mind that most staff had some prior experience of some form of electronic monitoring, although it is likely that for many this would have been Radio Frequency enabled curfew monitoring, and also that this finding was only based upon staff attending training days, who may not have been representative of all those involved in the pilot.

Overall, staff felt that GPS tags offered potential improvements to the way in which they carried out their jobs, including as a useful tool for managing offenders in the community. Views tended to vary by job role. For example, in terms of whether electronic location monitoring would have a beneficial impact upon their work: NPS and CRC staff were most positive, with court staff least positive. This possibly reflected perceived impacts of administering GPS location monitoring, with those managing offenders in the community regarding it as a tool likely to make their jobs easier, which was a finding highlighted by the qualitative evaluation report.⁶² In a similar vein, court staff interviewed for the qualitative evaluation identified concerns around longer decision-making processes and the administration of the tags.

It is worth noting that both staff and tag wearers interviewed for the qualitative report on this pilot felt that one of the benefits of GPS location monitoring was its ability to be used as evidence to rule tag wearers out of involvement in crime.⁶³ This finding is supported by examination of data recorded on agency requests for information on tag wearer whereabouts. Although data quality was limited, it demonstrates that GPS location monitoring can potentially reduce adversarial contact between the police and wearers who

⁶² Ministry of Justice (2019) *Process Evaluation of the Global Positioning System (GPS) Electronic Monitoring Pilot*. www.gov.uk

⁶³ *Ibid.*

were not involved in crimes, and can also provide evidence to help link wearers to the location of crimes.

At the time of tag fitting, wearers were also positive about potential benefits of the tag, although there were some concerns regarding the perceptions of others. This chimes with mixed views expressed in the qualitative process evaluation report. The tag removal survey showed that around half of respondents said that their time on tag had been positive, although two thirds reported that the tag had helped them make positive changes to their lives. Comfort appeared to be a negative factor for some, including the impact of the tag on sleeping, a finding also noted in the qualitative process evaluation report. The response rate to the tag removal survey was low (13%), and so it is important not to assume these findings reflected the experience of all wearers involved in the pilot.

GPS location monitoring aims to support offender management, assist rehabilitation and introduce additional assurance that may give decision makers confidence to impose a non-custodial outcome for some offenders and defendants who would otherwise be in prison. Whilst no firm conclusion can be made on the last aim from the data in this report, findings in this report suggest that there was 'buy in' to the usefulness of the GPS tag, with tags viewed as supporting offender management and rehabilitation by staff and wearers.

Annex A

Background and supplementary analysis

Description of pilot cohorts

The pilot made GPS location monitoring available across several criminal justice pathways:

- For individuals on **court imposed bail**, who would otherwise be remanded in custody.
- For offenders given **Suspended Sentence Orders (SSO⁶⁴)** or **Community Orders (CO⁶⁵)**, who would otherwise have been given a short custodial sentence.
- For offenders released on **Home Detention Curfew (HDC)**.⁶⁶ HDC boards were able to impose a GPS tag for prisoners eligible for HDC and where it was felt that risks could be managed more effectively by a GPS tag than a Radio Frequency (RF) tag.
- Case managers from the National Probation Service (NPS) or Community Rehabilitation Companies (CRCs) could recommend a GPS tag for offenders who were not complying with their licence conditions and where enforcement action was being considered (**licence variation**) and for offenders who were being considered for **re-release from prison after recall**.
- Offenders in prison on a **life sentence** or **Imprisonment for Public Protection (IPP⁶⁷)**, where the **Parole Board** had the option to impose a tag as a release condition. For the pilot, it was envisaged that GPS location monitoring would be an additional option for the Parole Board that may enable the release of offenders who otherwise would not have been considered.

⁶⁴ Short custodial sentences may be suspended for up to two years. This means that the offender does not go to prison but is instead given the chance to live in the community and comply with up to 13 requirements set by the court.

⁶⁵ COs require offenders to carry out activities in the community as part of their sentence plan. Wearers within this cohort would not have necessarily been given a custodial sentence if GPS monitoring had not been available. CO requirements must be deemed suitable and commensurate with the seriousness of an offence (Section 148 CJA 2003).

⁶⁶ Home Detention Curfews enable people to be released from prison earlier than their release date on licence in the community.

⁶⁷ IPP sentences are indeterminate sentences designed to protect the public from serious offenders whose crimes did not merit a life sentence. After offenders have completed a 'minimum tariff' or number of years in custody they can apply to the Parole Board for release. If released they will be on a supervised licence for at least 10 years. IPP sentences were discontinued in 2012.

Supplementary information on data used to inform this report

This report was informed by several different data sources:

Staff Awareness Survey

- Prior to commencement of the pilot, various staff training days were held. A survey was administered to participants to seek information on their awareness, experiences and perceptions of electronic monitoring.
- Responses to the survey are detailed in Chapter 6, Table 6.1. Completion of the survey was voluntary, as was attendance at training days. The views expressed by respondents are unlikely to represent the views of all stakeholders involved in delivering the pilot, and there were few respondents in some staff cohorts, such as police. The response rate as a proportion of those attending training is unknown.

Tagging surveys

- During tag fitting and removal appointments, wearers were asked if they would be willing to participate in a short survey. Paper-based surveys were administered by field teams and were analysed by staff at the Ministry of Justice. Responses to the survey are detailed in Table A.1. 395 responses were received for the tag fitting survey, a 67% response rate, and 74 to the tag removal survey, a 13% response rate. It is therefore possible that the views of those who completed the surveys are not representative of all tag wearers.
- The tag fitting survey asked them about prior experience of wearing a tag and what they expected from their time on tag. The tag removal survey asked them about their experience of wearing the tag as part of the pilot. The survey generally asked wearers to rate their level of agreement with a number of statements.

Table A.1: Responses to tag fitting surveys, by cohort⁶⁸

	Tag fitting (Number)	Tag fitting response rate	Tag removal (Number)	Tag removal response rate	Cohort size
Court Imposed Bail	161	73%	36	16%	220
Community Order	11	65%	2	12%	17
Suspended Sentence Order	5	71%	0	0%	7
Home Detention Curfew	64	74%	10	11%	87
Release after recall & Licence Variation	91	53%	10	6%	173
Parole Board Release	56	68%	16	20%	82
Missing ⁶⁹	7	N/A	0	N/A	N/A
Total	395	67%	74	13%	586

Source: Tag fitting and removal surveys

Pilot Management Information

- Comprehensive management information (MI) was gathered on each tagging instance, which enabled analysis to be carried out on tag take up over time, tag wearer demographics, time on tag, tagging requirements, and revocation rates. This data is referred to as '**Pilot MI**' when referenced.
- The tags generated a large volume of alerts. This data was recorded and forms the basis of the violations analysis presented in Chapter 3. It is referenced as '**Violations data**'.
- It is important to note that these data have been extracted from management information systems which, as with any administrative recording system, are subject to possible error with data entry and processing. Due to sample size, firm conclusions cannot be drawn from some sub-group analysis.
- Regression and survival analyses presented in Chapters 3 and 4 of this report entailed the matching of data on tag wearers from the Police National Computer (PNC) to management information gathered by the pilot. This provided a richer dataset for analysis. Where there was no PNC link, cases were excluded – this may have been because the individual had no criminal record, or due to data quality issues. Subsequently, when cases involved the same individual (there were 14 tag wearers who were tagged more than once during the pilot), only the first instance was retained. These steps resulted in 548 tag wearers in the matched dataset.

⁶⁸ Response rates are calculated as a proportion of total tagging instances for each cohort. Release after recall and licence variation cohorts were combined for the purposes of data collection.

⁶⁹ Some responses did not record sufficient information to enable responses to be linked to individual wearers.

- In the final model fitting, cases where there was no recorded original date for end of tagging (n = 18) were also removed, resulting in 530 cases in the matched dataset used for the analysis. Data on the characteristics of those tag wearers in the matched dataset is presented in Table A.2.

Table A.2: Characteristics of tag wearers linked to the PNC

	Male	Female	Total
Total unique individuals (linked to PNC)	513	17	530
Average (median) age	31	37	32
Average (median) planned tag length	112 days	83 days	112 days
Average (median) actual tag length	77 days	31 days	76 days
Planned tagging period completed ('successful' completion)	335	9	344
Tag removed early (for any reason)	178	8	186
Ethnicity			
Asian / Asian British	47	0	47
Black / Black British	54	2	56
Mixed	24	0	24
White	370	15	385
Other	9	0	9
Prefer not to say	9	0	9
Missing	0	0	0
Data from the Police National Computer			
Offences before tagging decision (median)	40	33	39
Police cautions before tagging decision (median)	1	2	1
Age of first criminal caution or conviction (median)	22	32	22

The regression models included the following independent variables:

- Age at date of decision to tag.
- Age at first caution or conviction.
- Gender.
- Ethnicity, in two categories; white, and all other ethnicities.
- Cohort, in seven categories: court imposed bail, Community Orders, Suspended Sentence Orders, Home Detention Curfew, release after recall, licence variation, and Parole Board releases. Court imposed bail was used as the reference category.

- Number of previous offences, with breakdown by previous violent offences, previous sexual offences, previous theft offences, previous other offences, and previous bail offences.
- Number of previous police cautions.
- Last offence type by violent, sexual, theft or other offence.
- OGRS4 score (a predictor of proven reoffending), calculated based on age, gender, current offence and criminal history.⁷⁰
- Time since last offence.
- English spoken by tag wearer, in two categories, 'yes' or 'no'.
- Planned order length; calculated as the difference between the planned end of tagging period and date of tag being fitted.
- Electronic monitoring requirements by exclusion, attendance, curfew, or standalone requirement. A tagging instance could entail more than one monitoring requirement.

⁷⁰ OGRS4 was calculated using the last recorded offence on the PNC before the tagging date as the index offence, except for the prison cohorts where an additional condition was that the last recorded offence had to have resulted in immediate custody. For the court bail cohort, this provided a calculation based on proven offending (where there was a proven offence), rather than assuming that individuals were guilty of the offence for which they were bailed – hence, it is a retrospective view of offending risk. Offence-free time in OGRS4 is the period between sentence / discharge and follow up, and here we used the difference between the last recorded offence and the date of decision to tag (which will be very near to actual tag on date).

Supplementary tables

Regression analysis: factors associated with successful completion of tagging

Table A.3 presents the outcome of the logistic regression modelling with successful completion of tagging period, as agreed with justice agencies, or the tag being removed early (for any reason) used as the dependent variable.⁷¹ Independent variables were included as described in the previous section.

Table A.3: Logistic Regression model (p of success)

Independent variables	Coefficient	exp(coeff)	Std. Error	z value	Pr(> z)	Statistical significance
(Intercept)	2.75605		2.598995	1.06	0.28895	
Community order	0.417275	1.51782	0.622336	0.67	0.50254	
HDC	1.436436	4.20568	0.444234	3.234	0.00122	**
Parole	0.257456	1.293635	0.412109	0.625	0.53215	
Licence variation	0.8226	2.276411	0.423485	1.942	0.05208	
Release after recall	0.124148	1.132183	0.342851	0.362	0.71727	
SSO	0.127977	1.136527	0.88201	0.145	0.88463	
Age	0.037996	1.038727	0.029558	1.286	0.19862	
Age at first caution or conviction	-0.031681	0.968816	0.020393	-1.554	0.1203	
Ethnicity (0=white)	-0.12281	0.884432	0.239692	-0.512	0.6084	
Sex (0=male)	0.579822	1.785721	0.619283	0.936	0.34913	
Previous offences	-0.002128	0.997874	0.004893	-0.435	0.66368	
No. of previous police cautions	-0.195731	0.822233	0.076954	-2.543	0.01098	*
Prev. violent offences	-0.011137	0.988925	0.025722	-0.433	0.66504	
Prev. sexual offences	0.019499	1.01969	0.062553	0.312	0.75526	
Prev. theft offences	-0.009634	0.990412	0.008706	-1.107	0.26849	
Prev. bail _offences (breaches)	-0.012782	0.987299	0.011483	-1.113	0.26568	
Prev. other offences	-	-	-	-	-	
Last offence is violent	1.203543	3.331901	1.386743	0.868	0.38545	
Last offence is sexual	0.111333	1.117767	1.62988	0.068	0.94554	
Last offence is theft	1.082422	2.95182	1.39207	0.778	0.43683	
Last offence is other	0.654588	1.92435	1.352942	0.484	0.62851	
OGRS4 score	-1.403769	0.245669	0.909702	-1.543	0.1228	
Exclusion requirement	-0.503225	0.604578	1.839175	-0.274	0.78438	
Attendance requirement	1.229666	3.420087	1.8462	0.666	0.50538	
Curfew requirement	-0.385078	0.680398	0.244362	-1.576	0.11506	
Standalone requirement	-0.792309	0.452798	1.845574	-0.429	0.6677	
Time since last offence	-0.015931	0.984195	0.022063	-0.722	0.47026	
Speaks English? (0=No)	-1.026889	0.358119	1.101742	-0.932	0.35131	
Planned order length	-0.002975	0.997029	0.001104	-2.694	0.00706	**

Significance: ** = <0.01 (99% confidence) * = <0.05 (95% confidence)

⁷¹ The analysis carries some assumptions: Firstly, that tag wearers do not affect each other's likelihood to comply with or violate the terms of their tag (i.e. they are independent observations). Secondly, that the PNC data obtained was accurate up to the date of tagging: PNC data was obtained several months after pilot tagging ceased, but there was a small chance that for some individuals in the bail cohort, court outcomes were not known before the PNC was updated for the data extract used in this analysis. Given 'successful' tagging would normally have ended with an individual's appearance at court, and examining the average time taken to complete cases nationally, this ought not to have affected many cases (if any at all).

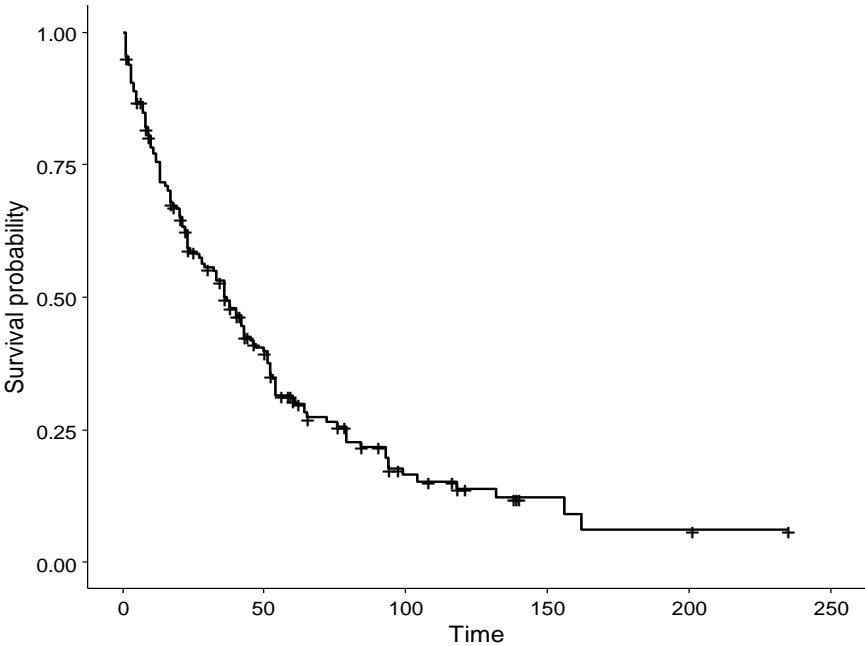
Survival Analysis

The survival analysis explored time to first breach – the first violation (where relevant) that the Monitoring Centre referred to the Responsible Officer as a potential breach - regardless of whether this breach led to the tag being revoked or not. The survival analysis linked pilot management information with the GPS violations dataset. Where individuals had been tagged more than once, only those breaches associated with the first tagging period were retained, leading to a small loss in breaches (3,187 violations were retained).

The analysis included any breach (as defined above) recorded during the tagging period (from date of tag to date of tag removal). If there was no link with the violations dataset, no breach was associated with that tag wearer unless the reason for tag removal was revocation – in these cases, we assumed that the reason for revocation was not directly due to the tag and so had not been noted in the violations dataset. For these individuals, the ‘first breach’ date was set to the date of revocation, and this instance was termed a breach (in that the event would have been a breach of GPS conditions but would not have been recorded by the monitoring centre in the violations database). There were 23 cases of this occurring, and sensitivity checks indicated that including these cases had negligible impact on the outcome of the analysis overall.

Survival plots to first breach for individual pilot cohorts⁷²

Figure A.1: Survival plot for court imposed bail cohort – time (in days) to first breach



⁷² Plots for Community Order and Suspended Sentence Order cohorts have been excluded due to small cohort sizes.

Figure A.2: Survival plot for Home Detention Curfew cohort – time (in days) to first breach

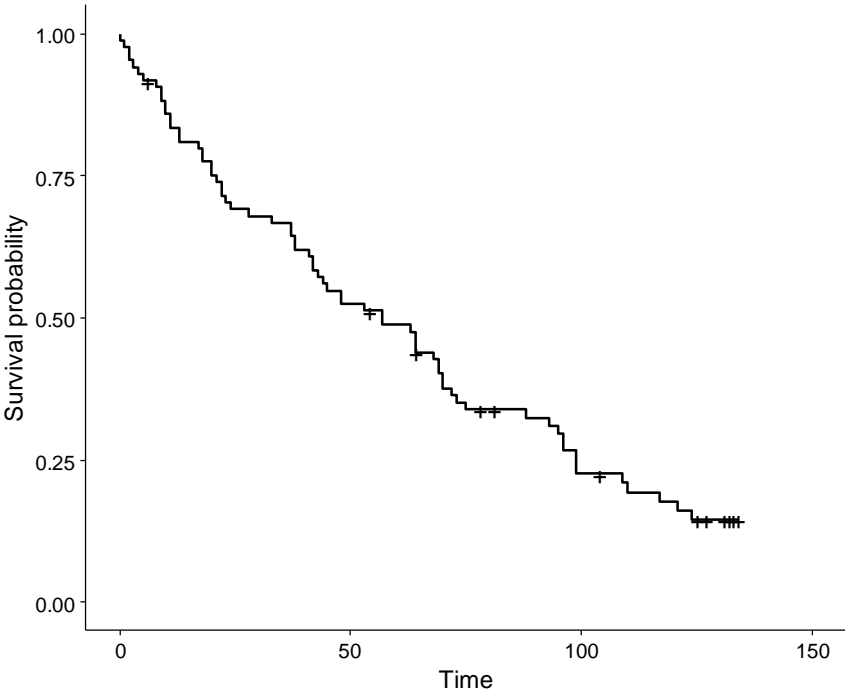


Figure A.3: Survival plot for Parole Board release (IPP/Lifer) cohort – time (in days) to first breach

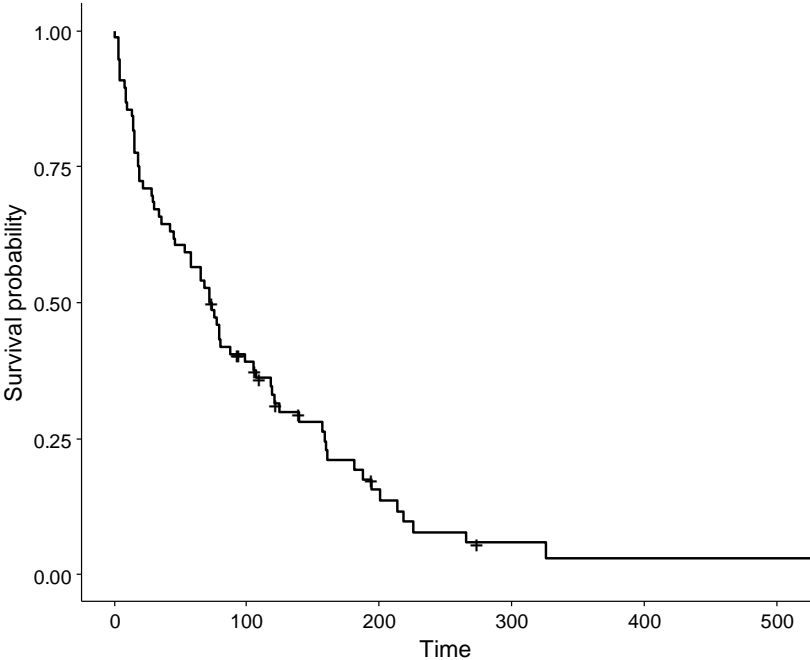


Figure A.4: Survival plot for release after recall cohort – time (in days) to first breach

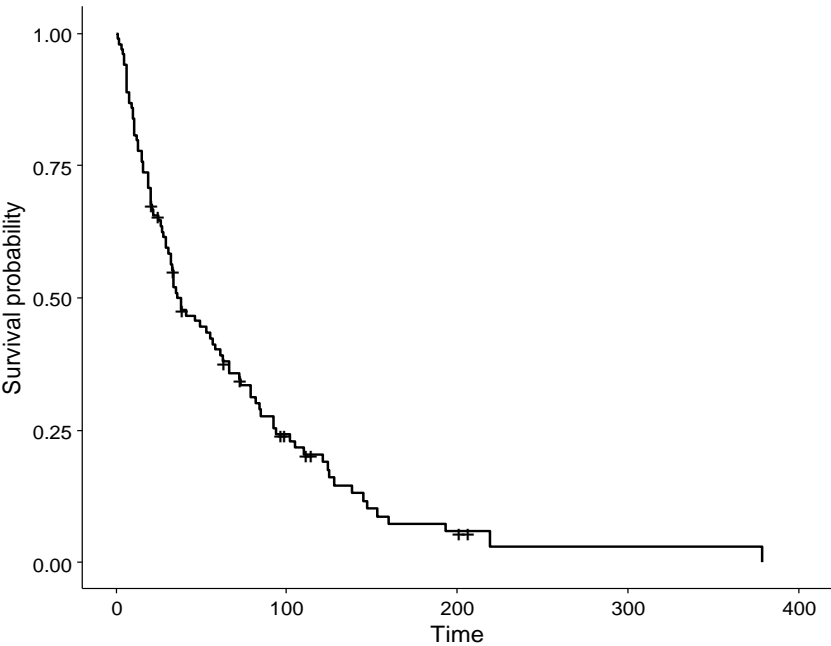
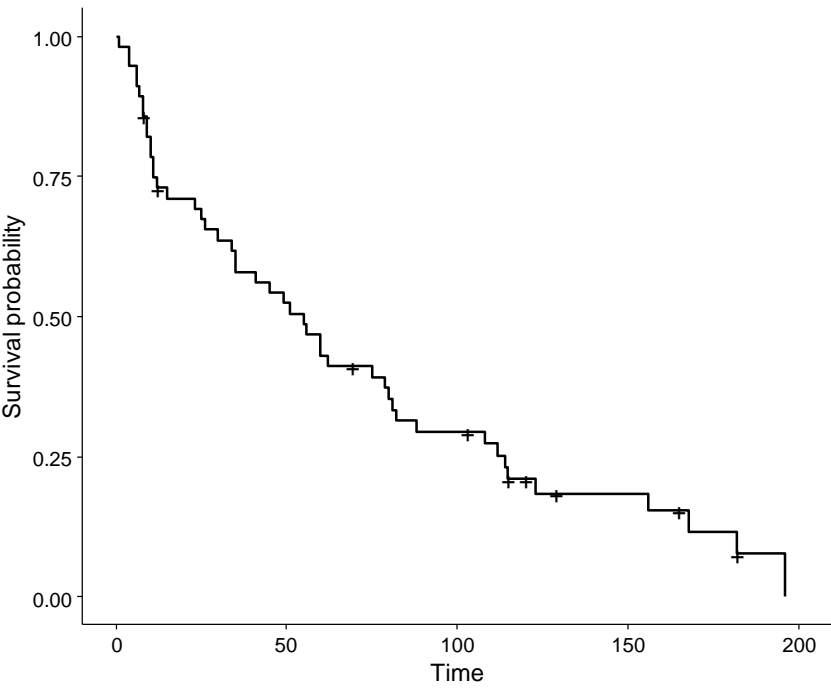


Figure A.5: Survival plot for licence variation cohort – time (in days) to first breach



Regression model on likelihood of (first) breach

Table A.4 presents the outcome of the regression analysis used to explore which factors were associated with first breach. Independent variables were included as described in the previous section.

Table A.4: Cox regression model⁷³

	coefficient	exp(coeff)	Std. Error	z value	Pr(> z)	
Community order	0.3109756	1.3647559	0.285368	1.09	0.27583	
HDC	-0.3833639	0.6815648	0.2102885	-1.823	0.0683	
Parole	-0.143051	0.8667099	0.212374	-0.674	0.50058	
Licence variation	-0.1312492	0.8769992	0.2113534	-0.621	0.5346	
Release after recall	0.0673835	1.0697056	0.1741818	0.387	0.69886	
SSO	0.1952309	1.2155916	0.4629713	0.422	0.67325	
Age	-0.040087	0.9607059	0.0150877	-2.657	0.00789	**
Age at first caution or conviction	0.0172822	1.0174324	0.0101987	1.695	0.09016	
Ethnicity (0=white)	0.1109488	1.1173377	0.1175244	0.944	0.34514	
Sex (0=male)	-0.24444	0.783143	0.3426292	-0.713	0.47558	
Previous offences	0.0027114	1.0027151	0.0022531	1.203	0.22882	
No. of previous police cautions	0.0671545	1.0694607	0.0396004	1.696	0.08992	
Prev. violent offences	-0.0037996	0.9962077	0.0125259	-0.303	0.76163	
Prev. sexual offences	-0.0379672	0.9627445	0.0341619	-1.111	0.2664	
Prev. theft offences	-0.0012421	0.9987587	0.0039749	-0.312	0.75468	
Prev. other offences	-	-	-	-	-	
Prev. bail offences	0.0069461	1.0069703	0.0054429	1.276	0.2019	
Last offence is sexual	-0.2796607	0.7560402	0.8112478	-0.345	0.7303	
Last offence is violent	0.1201133	1.1276246	0.6703541	0.179	0.8578	
Last offence is theft	0.2249136	1.2522145	0.6810721	0.33	0.74122	
Last offence is other	0.1583698	1.1715994	0.6603431	0.24	0.81046	
OGRS4	-0.3986954	0.6711951	0.3963852	-1.006	0.3145	
Exclusion requirement	-0.6127348	0.541867	2.7249052	-0.225	0.82208	
Attendance requirement	-0.3193478	0.7266228	2.7259049	-0.117	0.90674	
Curfew requirement	0.1636674	1.1778225	0.1276324	1.282	0.19973	
Standalone requirement	-0.5589984	0.5717815	2.7269911	-0.205	0.83758	
Time since last offence	0.0061936	1.0062128	0.0114684	0.54	0.58915	
Speaks English? (0=No)	0.1947525	1.2150102	0.3497354	0.557	0.57763	
Planned order length	-0.0038107	0.9961965	0.0007023	-5.426	5.76E-08	**

Significance: ** = <0.01 (99% confidence); * = <0.05 (95% confidence)

⁷³ Examining the hazard plots for these variables and testing for each the independence between residuals (Schoenfeld) and time indicates that the proportional hazard assumption holds, hence Cox regression is valid. The model tests were significant (likelihood = 92, Wald = 81, logrank = 78).

Annex B

Glossary

Approved Premises – Approved Premises (AP) are residential accommodation units which house offenders in the community. They act as a ‘half-way house’ helping to resettle offenders released from custody, and help to protect the public by monitoring offenders’ early months in the community.

Attendance Requirement – GPS tags could be used to monitoring a wearer’s attendance at a specified activity or appointment, such as community offending behaviour programmes.

Community Order (CO) – A community order is a sentence given by a court that combines punishment with activities carried out in the community. These can include multiple requirements such as unpaid work, curfew, rehabilitative activities, and offender behaviour programmes. Courts were able to impose location monitoring as one of these requirements in the pilot.

Community Rehabilitation Company (CRC) – Community Rehabilitation Companies are private sector suppliers of probation services. They supervise low to medium risk offenders in the community.

Court Imposed Bail – After an individual has been charged, but prior to a criminal trial, an individual can either be remanded in custody, or granted bail. When granting bail, a court may impose conditions on the individual. These conditions aim to ensure attendance at court, prevent further offences; and reduce the likelihood of interference with victims and witnesses. Courts were able to impose location monitoring as a bail condition within the pilot areas. Bail conditions can also be imposed by the police, while an investigation is ongoing and prior to charge, but this cohort was not within scope for the pilot.

Curfew – A curfew requires a wearer to be present at a specific address during specified hours (e.g. 7pm to 7am). Curfews are used across the criminal justice system and have been monitored electronically using RF tags. Curfew capability was added to the pilot in May 2017 using the GPS tag for this purpose. This allowed curfews to be used alongside the other location requirements introduced in the pilot, such as exclusion zones.

Exclusion Zone – A requirement for a wearer to avoid entering a specified zone. These zones would be linked to an offender’s previous criminal behaviour or risk. For example,

offenders who have committed shoplifting offences may have exclusion zones set around shopping centres, domestic violence offender may have zones set around an ex/partner's address.

External Agency Request (EAR) – If a Responsible Officer or other stakeholder required access to location data that they could not routinely access, the relevant principles within data protection legislation needed to be considered to ensure any disclosure was lawful and necessary. For this purpose and to ensure requests were assessed in a consistent, auditable way the pilot operated an EAR process. EAR applications were required to explain why access to the requested information was needed. Each request was considered individually by the Monitoring Centre, and the minimum data required was only released when justified, proportionate and necessary.

GPS Tag – An electronic tag fitted around an individual's ankle. The tag uses signals from Global Positioning System (GPS) satellites to calculate its location, which is then sent over a mobile network to a central monitoring centre. The pilot used the Attenti One-Piece GPS Offender Tracking Device, which weighed 150g and measured 84x56x31mm (H/W/D).

Home Detention Curfew (HDC) – HDC is a form of early release for prisoners serving sentences of up to four years. If a prisoner is eligible for HDC, they may be released prior to the standard release point, and be subject to an overnight curfew at their home address. HDC is available nationally using RF tags, although within the pilot areas this was expanded to include GPS tags for cases that would not have otherwise been released.

Integrated Offender Management (IOM) – IOM brings a cross-agency response to the crime and reoffending threats faced by local communities. The most persistent and problematic offenders are identified and managed jointly by partner agencies working together. Further information on IOM is available from the Home Office. IOM schemes across England and Wales have often used GPS tags on a voluntary basis, and the pilot introduced the capability for compulsory tagging.

Monitoring Centre – A single monitoring centre for the pilot was set-up in Hertfordshire. The monitoring centre was operational for 24 hours a day and was operated by police staff who were responsible for reviewing alerts generated by the tags, and for reporting any potential breaches to Responsible Officers.

National Probation Service (NPS) – The National Probation Service is a public-sector criminal justice service that supervises high-risk offenders in the community. The NPS are also responsible for the provision of pre-sentence reports within courts, which provide guidance on suitable sentencing options.

Parole Board – The Parole Board is an independent body that carries out risk assessments on prisoners to determine whether they can be safely released into the community. Within the pilot, the Parole Board were able to impose location monitoring as a requirement of release for prisoners serving life sentences or Indeterminate Sentences for Public Protection (IPP).

Potential Breach – Potential breaches were confirmed violations of any part of a wearer’s monitoring requirements (e.g. curfew, flat battery, entering an exclusion zone etc.) that were referred by the Monitoring Centre to the Responsible Officer.

Public Protection Casework Section (PPCS) – The PPCS is a body within HMPPS who are responsible for revoking prison licences following a breach of conditions, issuing recalls to custody, and varying licence conditions.

Recall and licence variation – If an offender who has been released from prison and is being managed in the community breaches the terms of their licence, the probation officer may decide to recall the offender to custody. Recall can either be for a fixed period (14/28 days) or for the remainder of the sentence. Within the pilot, GPS tags could be imposed when an offender was being released following a recall period, or as a licence variation for behaviour that did not meet the threshold for recall.

Responsible Officer – The individual responsible for managing each offender or bailee while they are in the community. For court imposed bail cases, the Responsible Officer would be a person within the police force, for HDC it would be the PPCS, and for all other cohorts it would be a person from the NPS or CRC.

Revocation – When tags are removed before the scheduled end of monitoring, this is referred to as “revocation”. This can be due to breach or other negative reasons, such as further arrest or recall, or for neutral or positive reasons, such as health reasons or because tags were felt not to be needed any longer. It should be noted for this report that tags could be revoked due to breaches not directly related to GPS monitoring.

RF Tag – Radio Frequency (RF) tags are routinely used in the criminal justice system to monitor compliance with curfews. They are fitted around an individual’s ankle, and work in conjunction with a home monitoring unit to confirm if an individual is in their home. Unlike GPS tags, they can only monitor whether the offender is within a short distance of the base station, and they cannot monitor the individual once they have left their home.

Service Level Agreement – Several service level agreements were in place within the pilot. These required the field team to fit GPS tags within 24 hours of notification, and the monitoring centre to report any potential breaches to the Responsible Officer within 30 minutes.

Standalone location monitoring (also referred to as trail monitoring) – This involves monitoring the wearer’s location without any exclusion zones, attendance or curfew requirements. The data collected is viewed retrospectively by Responsible Officers and used for offender management purposes.

Suspended Sentence Order (SSO) – When a court imposes a custodial sentence of between 14 days and two years, the court may choose to suspend the sentence for up to two years. The offender will remain in the community and be subject to requirements set by the courts. Courts were able to impose location monitoring as one of these requirements in the pilot. If the offender does not comply with the requirements or is convicted of another offence, the sentence can be activated and the offender will be sent to prison for the duration of the original term along with any new sentence.

Violation – Violations were defined as potentially actionable tag alerts received by the Monitoring Centre. The Monitoring Centre processed these alerts, and decided if an alert constituted a potential breach, or if the alerts were caused by technical issues.

Wearer – Any individual who has had experience of wearing a GPS tag on the pilot. The term ‘offender’ is not used as some individuals given a tag may have not been convicted of an offence – specifically within the court imposed bail cohort.