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The evaluation of the mandatory polygraph pilot

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Ministry of Justice Research Series 14/12
July 2012

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First published July 2012

ISBN: 978-1-84099-555-8

Acknowledgements

We would like to thank the range of individuals who have contributed to this piece of research. We would particularly like to thank the offender managers, offenders and other strategic staff who took part in this study. We would like to thank NOMS Offender Management and Public Protection Group (OMPPG), with special mention of Maria Duraes and Celia Shaw for their coordination and cross-checking of polygraph data, and the telephone team who coordinated the phone calls. In particular, we thank Nichola Tyler and Magali Barnoux for working above and beyond normal working hours in their research assistance. We would also like to thank the external reviewers for their helpful comments, and the steering committee associated with this research. Finally, we would like to thank those in Ministry of Justice Analytical Services – in particular Caroline Logue and Kathryn Hopkins – who played a valuable role in shaping the final version of this report.

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Summary

Context

This report presents the findings from research commissioned to examine the impact of mandatory polygraph testing for sexual offenders released on licence and under supervision by probation staff in two regions in England. Mandatory polygraph testing for adult sexual offenders began in April 2009 across the East and West Midlands probation regions. The use of the polygraph in these pilot regions was facilitated under the auspices of the Offender Management Act 2007, which allowed offender managers to insert a polygraph testing condition into the licences of offenders released from sentences of 12 months or more for a sexual offence.

The University of Kent was commissioned to evaluate the pilot from 1 April 2010. The evaluation described in this report refers to 332 'polygraph offenders' who received a first polygraph test or who were released into the pilot areas since that date. Research was also undertaken on 303 offenders in seven probation trusts from two 'comparison regions', where licence supervision did not include polygraph testing ('comparison offenders').

The research period described in this report covers 1 April 2010 to 21 December 2011. These dates enabled a sufficient throughput of sexual offenders to yield a representative research sample.

Aims and methods

Using a quasi-experimental design, this research aimed to:

- 1) Examine the implementation and delivery of the polygraph pilot in the supervision of sexual offenders.
- 2) Evaluate the impact of the polygraph on:
 - Clinically significant disclosures (CSDs¹) made by offenders
 - offender manager supervision practices
 - perceptions and behaviours among offenders and offender managers.
- 3) Determine whether the polygraph is a cost-effective means of improving the management of sex offenders in the community.

¹ Defined as 'new information that the offender discloses, which leads to a change in how they are managed, supervised, or risk assessed, or to a change in the treatment intervention that they receive'.

Offender managers responsible for supervising polygraph and comparison offenders were telephoned by the research team to obtain information regarding CSDs made by their offenders, the impact that the disclosures had in terms of actions taken, and seriousness of the disclosure(s) in terms of risk. Offender managers in the polygraph group were also asked about how useful they were finding the polygraph in their supervision practices. Following initial contact, offender managers from both groups were called at regular three-month intervals to obtain information about disclosures throughout the whole licence period.

Of the 332 polygraph and 303 comparison offender managers eligible for a research phone call, the response rate was over 99% for both groups.

Results

The polygraph and comparison groups did not differ considerably on key characteristics likely to confound the result of the polygraph impact evaluation. CSDs were consistently higher in the polygraph group than in the comparison group.

Offenders in the polygraph group had made more CSDs than those in the comparison group. The majority of these CSDs were made within a polygraph session and related to 'changes in circumstance or risk'. The difference in CSDs between the polygraph and comparison groups remained constant even when length of time in supervision was accounted for in the analysis.

The polygraph pilot's impact on number of CSDs did not vary by offender demographics (e.g. risk and index offence type) or experience of sexual offender treatment.

Offenders receiving their first polygraph test made more CSDs if their test result was 'deception indicated (DI)'. This difference dissipated on subsequent tests when offenders received less 'DI' test results.

Following a CSD, a higher proportion of offender managers in the polygraph group than in the comparison group took actions rather than maintaining the exact same supervision processes. These actions involved:

- increasing supervision/controls (including recall);
- informing a third party;
- changing supervision focus;

- informing MAPP meeting/processes;² or
- issuing a warning to the offender.

When CSDs were made, the seriousness of these disclosures did not appear to vary substantially between the polygraph and comparison groups.

Offender managers and some offenders involved in polygraph supervision reported finding the polygraph helpful. The results from a preliminary process evaluation study and in-depth qualitative study, alongside the quantitative findings, indicated that offender managers reported finding the test outcome and the report provided by the polygraph examiner useful for providing information about risk and compliance with licence conditions. Some offenders reported that the polygraph helped them to manage their behaviour.

There was a trend for medium- and high-/very high-risk offenders to be more likely to receive a DI result on their first polygraph test compared to low-risk offenders. However, this trend was not evident at test 2, when around 20% of offenders, of varying risk levels, obtained a DI result.

The cost of each additional CSD associated with the mandatory polygraph pilot is £556.

Conclusions and implications

Polygraph testing has increased the chances that a sexual offender under supervision in the community will reveal information relevant to their management, supervision, treatment, or risk assessment. It has also increased the likelihood of preventative actions being taken by offender managers to protect the public from harm.

A preliminary process evaluation study and in-depth qualitative study showed that the polygraph was seen by both offender managers and offenders as a valuable adjunct to supervision.

Polygraph testing has increased CSDs across offenders of varying risk level, index offence type, and sexual offender treatment experience. Thus, the polygraph is a suitable tool for eliciting CSDs for all types of sexual offender.

² Multi-Agency Public Protection.

Given that each additional CSD elicited by the polygraph costs an estimated £556, its use in any future national roll-out should be subject to a viable commissioning policy. This policy might consider how polygraph resources should be effectively targeted, and/or the best way to reduce the costs of polygraph testing.

1. Introduction and background

1.1 Context

The polygraph – often mistakenly described as a ‘lie detector’ – measures arousal associated with physiological changes of the autonomic nervous system (Grubin, 2006). In brief, although not a lie detector *per se*, the polygraph measures physiological arousal, which is hypothesised to be the product of deception – i.e. respiration, cardiovascular and sweat responses (Gannon, Beech and Ward, 2008). These results are then used to assess the probable truthfulness of statements an individual makes (Grubin, 2005; Madsen, Parsons and Grubin, 2004). Over the past two decades, the polygraph has received increased attention surrounding its ability to facilitate honest disclosures from sexual offenders concerning risk-related information.

In the US, for example, the polygraph has received wide acceptance in the treatment and supervision of offenders, where it is used for supervising and monitoring sexual offenders on parole or probation (English *et al*, 2000; Grubin, 2003). In many US states, the polygraph has become a routine tool in the management of sexual offenders, whose adherence to community restrictions and factors associated with relapse are closely monitored as part of their licence supervision. For example, in their review of US adult male sexual offender treatment programmes, McGrath *et al* (2010) reported that just under 80% of community programmes and more than half of residential treatment programmes used polygraph testing.

Despite widespread usage, however, controversy has surrounded the polygraph, as the research used to assess its effectiveness has generally lacked scientific rigour (see McGrath *et al*, 2007).³ For example, studies have not incorporated adequately matched comparison groups (i.e. of offenders who do not receive polygraph examinations – see Gannon, Beech and Ward, 2008), and so the specific impact of testing cannot be reliably identified. Furthermore, research providing preliminary support for polygraph-assisted supervision with sexual offenders is based predominately on US samples (e.g. English *et al*, 2000). The polygraph is widely used in the US as an investigative tool that helps determine guilt or innocence; it has not been used in this way in the UK. Legislation had to be passed to allow the use of the polygraph during the mandatory polygraph pilot described in this report. Further legislation would be required before mandatory polygraph testing on licence could be used in the future.

³ We recognise that the polygraph is also subject to ethical controversy. However, this report focuses exclusively on the effectiveness of the polygraph, and so a discussion of the ethical debate surrounding the polygraph is beyond the scope of this report.

In 2004, Grubin and colleagues reported preliminary – yet encouraging – findings of a Home Office-supported pilot of voluntary polygraph testing with a small group of sexual offenders in three probation areas (Grubin *et al*, 2004). Following this, the National Offender Management Service (NOMS) commissioned a more extensive voluntary pilot across ten English probation areas (Grubin, 2006; 2010). In this pilot, a group of offenders receiving standard supervision (i.e. who did not receive polygraph examinations) were used for comparison purposes.⁴ Overall, the results suggested that the odds of polygraph offenders disclosing information relevant to their subsequent treatment, supervision, and risk assessment were 14 times greater than comparison offenders. Nevertheless, important caveats were associated with the voluntary pilot:

- First, because the pilot was voluntary, it is unclear whether offenders who were less motivated to undertake polygraph testing (i.e. those who declined to take part in the study) would have disclosed the same amount of information.
- Second, selected comparison offenders were not robustly matched to the polygraph offenders on ethnicity, previous sex offences, or index offence.
- Third, offender managers themselves were required to return disclosure information to the researchers, which resulted in problematic amounts of non-returned data (disclosure forms were unavailable for around 50% of the polygraph offenders).
- Fourth, the time points for recording disclosures across the groups were not adequately matched, so some offenders may have had longer in the community and so more opportunity to reoffend.
- Finally, time at risk – that is, time available to actually make disclosures in the community – was not controlled for in this initial pilot. Consequently, some offenders had been on licence in the community for longer than others, thus giving more opportunity to encounter situations leading to making disclosures.

It is in the context of this previous pilot that mandatory polygraph testing, and the associated research in this report, were commissioned.

⁴ Offender managers for both groups were required to complete 'capture' forms regarding new information disclosed by the offender and the impact of these disclosures for subsequent supervision, treatment, and risk assessment. For polygraph offenders, offender managers were requested to complete the forms immediately after the polygraph test; comparison offender managers completed the capture forms relating to regular supervision that had taken place some months earlier.

The research described in this report aimed to extend and improve Grubin's previous research methodology. This research methodology included collecting disclosure information from polygraph and comparison offender managers (1) using telephone appointments in order to increase response rate, and (2) at matched time intervals. Time available in the community to make disclosures was also recorded for both groups.

This research also builds on Wood *et al's* (2010) research, which examined the nature of disclosures made by offenders in supervision before the introduction of mandatory polygraph testing. This research showed that offenders' disclosures acted as triggers for a variety of actions that resulted in changes to an offender's risk management plan; the data capture design in the current study was informed by this (see Appendix 1).

1.2 The mandatory polygraph pilot

In April 2009, NOMS Offender Management and Public Protection Group (OMPPG) began piloting mandatory polygraph testing for sexual offenders in nine (now eight following a merger) probation trusts in the East and West Midlands Regions.⁵ Operating under legislation introduced in the Offender Management Act 2007, provision was made for adult offenders (18 years and over), sentenced to 12 months or more for a sexual offence and released from prison into the pilot areas during the lifetime of the pilot to be required to comply with polygraph testing as one of their licence conditions. As with failure to comply with any other licence condition, recall to prison was a possible consequence if they failed to comply with the polygraph condition. The legislation included 'Polygraph Rules', which governed the qualification and training of the polygraph examiners and the way in which the examination itself was administered and reported to the offender manager.

The questions put to the offenders who were tested by the polygraph were formulated to test the offender's compliance with licence conditions and/or aspects of supervision designed to control or minimise their risk. Although various test formats exist (e.g. sexual history disclosure tests), our study focused predominantly on the use of maintenance tests (i.e. tests examining compliance with supervision). The outcome of the polygraph test indicated whether the offender was telling the truth ('no deception indicated' – NDI), or lying ('deception indicated' – DI), or in a minority of cases the test would be found 'invalid' or 'inconclusive' (in which case another test would be arranged).

⁵ Newcastle University was responsible for implementing the polygraph testing.

An offender's first test was generally scheduled and conducted within the first three months of release. Offenders who were tested could make CSDs relating to their behaviour either before the test, during the test, or afterwards, to 'explain' their anticipated or actual test outcome. If they disclosed that they had breached a licence condition, then enforcement action, including recall to prison, could be taken by the offender manager. If no disclosures followed a test result of DI, the offender manager might adjust the focus of supervision and/or increase controls on the offender. The aim was that an offender receiving a DI test result would be retested in three months, and those having NDI results would be retested in six months. Where results were inconclusive, the offender was given the 'benefit of the doubt' and another test arranged as soon as possible – always within three months. Where the test was invalid (for example because the offender moved, or was applying or suspected of applying countermeasures), another was rearranged as soon as possible and always within three months. The legislation does not allow offenders to be recalled for failing a test (i.e. a DI result). However, as stated above, they could be recalled for failing to attend a test or for disclosure regarding non-compliance with licence conditions.

The University of Kent was contracted to evaluate the impact of the polygraph pilot in March 2010. Consequently, the results reported in this report refer only to polygraph offenders who received a first polygraph test or who were referred to the pilot trusts since 1 April 2010. Cumulative data on this sample was collected until 21 December 2011.

2. Quantitative research methods

This chapter provides details of the research design and methods used. As has been stated, the research implemented a quasi-experimental design using a mixed methods approach based on the collection of quantitative and qualitative data.

2.1 Research objectives

This report presents the overall findings of research commissioned to examine the impact of mandatory polygraph testing for sexual offenders in England.

The objectives of this study were to:

- evaluate the impact of the polygraph pilot on the number and type of CSDs made by offenders, including any variation by offender demographics (e.g. risk and offence type);
- examine the actions taken by offender managers in response to CSDs;
- examine if offender managers report the polygraph to add value to their supervision practices with offenders and in what ways;
- investigate offenders' experiences of the polygraph process and any self-reported impact on their behaviour;
- examine the implementation and delivery of the polygraph pilot in the supervision of sexual offenders;
- report the costs attached to polygraph testing and calculate any added value over and above routine supervision.

2.2 Research design

The research design involved a non-random sample of offenders. Consequently, the research findings discussed in this report should be evaluated in this context and not considered a random control trial.⁶ While polygraph testing was mandatory for the offenders with a polygraph condition released into the pilot areas, participation in the research was made voluntary for all offenders via 'opt out' procedures. Data capture information and methodology is summarised in Appendix 2.

⁶ Quasi-experimental research should ensure that groups are well matched on any variables that could potentially confound the research. Early preliminary analyses showed that the polygraph and comparison groups did not differ statistically on characteristics likely to confound the results of the polygraph impact evaluation. Consequently, offenders were not matched using a one-to-one model.

Participants: polygraph group

Sexual offenders released from prison into one of the East and West Midlands pilot trusts who received their first polygraph test on or following 1 April 2010 were eligible to be included in the research if their licence conditions included polygraph testing.⁷ A total of 367 offenders initially met these criteria. However, 12 offenders chose to opt out of the research (see Section 3.2: Research design), and it was impossible to make contact with the offender managers of two offenders. A further 21 offenders were unsuitable for inclusion in the study due to geographical relocation outside the pilot areas or almost immediate recall to custody. This left 332 polygraph offenders in the polygraph sample.

Participants: comparison group

Seven comparison trusts were selected by Ministry of Justice analysts in Offender Management Sentencing and Analytical Services (OMSAS) for the recruitment of a comparison sample of offenders in January 2010. Trusts were selected to match the polygraph trusts as closely as possible according to the rural/urban constitution, demographics such as age and ethnicity, Risk Matrix 2000 scores and 'throughput' of sexual offenders.⁸ Offenders released into these areas on or following 1 April 2010 were eligible for inclusion in the research, and a total of 351 offenders initially met these criteria. However, 30 offenders chose to opt out of the research, a further eight were unsuitable for inclusion, eight were transferred to other probation areas, deported or moved to a secure hospital, and it was impossible to make contact with the offender managers of two offenders. This left 303 comparison offenders. The numbers of offenders referred from each probation trust and included in the research are outlined in Table 2.1. The numbers vary in line with the numbers of offenders being supervised by the different trusts and their population/geographical statistics.

⁷ The East and West Midlands regions are composed of eight probation trusts.

⁸ The probation regions chosen were the North West, and Yorkshire and Humberside.

Table 2.1: Offenders included in the research by probation area

Probation trust	Offenders
Polygraph (<i>N</i> = 332)	% (<i>n</i>)
Derbyshire	16.0 (53)
Leicestershire	5.4 (18)
Lincolnshire	6.6 (22)
Northamptonshire	7.2 (24)
Nottinghamshire	17.2 (57)
Staffordshire & West Midlands	36.7 (122)
Warwickshire	3.3 (11)
West Mercia	7.5 (25)
Comparison (<i>N</i> = 303)	
Cheshire	5.3 (16)
Cumbria	6.3 (19)
Humberside	17.8 (54)
Merseyside	13.9 (42)
North Yorkshire	12.9 (39)
South Yorkshire	18.8 (57)
West Yorkshire	25.1 (76)

Phone call response rates

The response rates of offender managers in both the polygraph group and the comparison group were very good (cf. Grubin, 2006; 2010). We were unable to collect any information from only two offender managers in the polygraph group and two offender managers in the comparison group on initial contact attempts. An overall response rate of 99.4% in the polygraph group and 99.3% in the comparison group was achieved. Less than 2% of each groups did not provide complete CSD information. It should be acknowledged, however, that offender managers were not blinded to the condition they were in (i.e. they were fully aware that they were taking part in the research and what the outcome measure under evaluation was), and that this could have led to reporting response bias, either against or in favour of the polygraph condition.

2.3 Caveats

Important caveats regarding the outcomes described above should be highlighted:

- The data collection period was relatively short (i.e. from 1 April 2010 to 21 December 2011). Consequently, although a large amount of CSD data was available for overall analysis, a relatively small number of offenders in the polygraph group had received multiple tests (i.e. three or more) and had CSD data successfully collected. This limited the scope of data available to draw conclusions about the effects of retests on CSDs.
- The polygraph was not piloted on suitable numbers of offenders who had index offences relating to both adults and children, unusual victim types (e.g. mentally

impaired adults), or under-represented demographics (e.g. female sexual offenders). This limited our ability to draw conclusions about the effects of testing on these offender subgroups. However, there is no reason – theoretically – to believe that these groups, if tested in the future, would react any differently to the offenders included in this reported research.

- The research relied on offender managers reporting numbers of CSDs to our research team by telephone. It is possible that polygraph offender managers felt more motivated or 'expected' to provide large numbers of CSDs compared to comparison offender managers. Furthermore, the quality of information provided by offender managers varied greatly. Some had to be repeatedly prompted about the definition of a CSD.
- The cost-effectiveness analysis of the pilot was limited greatly by the economic data available at the time of this research. Only the costs associated with polygraph testing itself were available as economic data. Consequently, other relevant costs could not be considered in our calculations.

3. Quantitative research findings

3.1 Contextual information

Demographics of polygraph and comparison offenders

As shown in Table 3.1, the polygraph and comparison groups did not differ considerably on characteristics likely to confound the results of the polygraph impact evaluation. The groups were similar in age, sentence length, previous number of sexual offences, index offence type, RM2000 scores, ethnicity and gender.⁹

Table 3.1: Demographic summary of polygraph and comparison offenders

	Polygraph (N = 332)	Comparison (N = 303)	Significance
	Mean (Range)	Mean (Range)	
Age (years)	42.9 (19–80)	42.8 (18–84)	NS
Sentence length (months)	66.0 (6–180)	56.5 (2–214) ¹⁰	NS
Previous number of sexual offences	0.34 (0–5)	0.48 (0–24)	NS
Index offence type ¹¹	% (n)	% (n)	
Adult (rape, sexual assault)	19.6 (65)	21.5 (65)	NS
Child (contact)	59.9 (199)	62.0 (188)	S
Both children and adults	1.5 (5)	2.3 (7)	S
Pornography (images, internet)	9.9 (33)	8.6 (26)	S
Child (contact) + pornography	8.4 (28)	5.0 (15)	S
Vulnerable adult (e.g. mentally impaired)	0.6 (2)	0.7 (2)	S
RM2000 ¹²			p < 0.0001 ¹³
Low	31.3 (104)	30.4 (92)	
Medium	35.5 (118)	27.1 (82)	
High	25.0 (83)	21.5 (65)	
Very high	5.1 (17)	4.3 (13)	
Not administered	2.1 (7)	11.2 (34)	
Offender manager did not know	0.9 (3)	5.6 (17)	
Ethnicity			
Non-BME	91.3 (303)	94.7 (286)	NS
BME	8.7 (29)	5.3 (17)	S
Gender			
Male	99.7 (331)	99.0 (300)	NS
Female	0.3 (1)	1.0 (3)	S

⁹ Assessed using either Chi Square (for categorical data) or t-tests.

¹⁰ Sentence length information was unavailable for one polygraph offender. Two offender managers in the polygraph group and one in the comparison group reported that their offender had an IPP (Indeterminate Public Protection) sentence.

¹¹ While the term ‘pornography’ has been used here in a general sense, this includes child abuse images. It is recognised that the term ‘child abuse material’ more accurately reflects the nature of that particular offence.

¹² RM2000 is Risk Matrix 2000, a risk assessment tool used in the UK by police and probation in the management of adult male sexual offenders. The tool works on an assessment of static risk factors.

¹³ The overall Chi square was significant since a higher proportion of ‘not administered’ RM2000s were associated with the comparison group. There was no significant difference in the proportions of low, medium, high or very high RM2000 scores across the groups $\chi^2(3, N = 574) = 1.42, p = 0.70$.

Time in supervision

Offenders in the polygraph group had made more CSDs than those in the comparison group, although polygraph offenders had – on average – spent a significantly longer time in supervision than the comparison group (343 days versus 272 days).¹⁴ This is relevant, since it would be expected that a longer time in supervision would allow more opportunity for exposure to risky situations to occur and for offenders to make more CSDs. Importantly, further analysis showed that the difference in the number of CSDs remained constant even when length of time in supervision was accounted for.

3.2 Polygraph test outcomes

At the conclusion of data collection, 606 tests had been successfully completed for the polygraph group in total.¹⁵ The test outcomes for these tests are displayed in Table 3.2. This table shows that the majority of tests conducted fell into the ‘no deception indicated’ category.¹⁶ This table also shows that the percentage of tests classified as having a test outcome of ‘deception indicated’ decreased as offenders gained experience of polygraph testing. This may suggest that offenders began to engage more appropriately in supervision following experience of polygraph testing.

Overall, CSD data were collected for 148 offenders relating to one test only, 110 offenders relating to two tests only, 61 offenders relating to three tests only, 11 offenders relating to four tests only, and two offenders relating to five tests only.

Table 3.2: Polygraph test outcomes according to test number

Test outcome	First test % (n)	Second test % (n)	Third test % (n)	Fourth test % (n)	Fifth test n
No deception indicated (NDI)	50.6 (168)	60.6 (120)	53.6 (45)	61.5 (16)	3 ¹⁷
Deception indicated (DI)	28.6 (95)	18.2 (36)	9.6 (19)	7.7 (2)	0
Inconclusive (INC)	12.7 (42)	9.6 (19)	14.3 (12)	7.7 (2)	0
Invalid result (IR)	4.5 (15)	4.0 (8)	2.4 (2)	7.7 (2)	0
Test not completed (e.g. cancelled or offender did not attend)	3.6 (12)	7.6 (15)	7.1 (6)	15.4 (4)	0

¹⁴ $t(625) = 5.68, p < 0.001$

¹⁵ A successful test is defined as a test completed by the offender that resulted in either a ‘no deception indicated’, ‘deception indicated’, ‘inconclusive’, or ‘invalid’ outcome. It excludes those who may have turned up for a test but who could not be tested, for example because they were ill or intoxicated. These tests would be rescheduled and/or enforcement action taken.

¹⁶ Table 4.2 shows the ‘N’ value of test outcomes. Note that these figures are not offender-specific. Thus, throughout the testing process, offenders could have different test results, and this is reflected in Table 4.2.

¹⁷ One offender in the sample had a sixth test.

Polygraph test outcomes and risk

Table 3.3 shows the test outcomes for offenders of varying risk levels according to test number. This table shows that there is a trend for medium- and high-/very high-risk offenders to have a higher percentage of ‘deception indicated’ results on their first test, compared to low-risk offenders. High-/very high-risk offenders also had a relatively low number of ‘no deception indicated’ test results and high number of ‘inconclusive’ test results relative to low- and medium-risk offenders. However, after offenders gained experience of polygraph testing, the percentage of tests classified as having a test outcome of ‘no deception indicated’, ‘deception indicated’ and ‘inconclusive’ became more comparable across the different risk levels.

Table 3.3: Polygraph test outcomes according to test number and RM2000 score

Test outcome	First test			Second test			Third ¹⁸ test		
	Low	Med	High/ very high ¹⁹	Low	Med	High/ very high	Low	Med	High/ very high
	% (n)	% (n)	% (n)	% (n)	% (n)	% (n)	% (n)	% (n)	% (n)
No deception indicated (NDI)	60.0 (60)	59.0 (66)	38.8 (38)	68.4 (39)	63.2 (13)	66.0 (35)	74.0 (17)	56.3 (18)	47.6 (10)
Deception indicated (DI)	20.0 (20)	30.4 (34)	35.7 (35)	21.1 (12)	19.1 (13)	20.8 (11)	13.0 (3)	21.9 (7)	38.1 (8)
Inconclusive (INC)	13.0 (13)	8.9 (10)	19.4 (19)	7.0 (4)	11.8 (8)	9.4 (5)	8.7 (2)	18.7 (6)	14.3 (3)
Invalid result (IR)	7.0 (7)	1.7 (2)	6.1 (6)	3.5 (2)	5.9 (4)	3.8 (2)	4.3 (1)	3.1 (1)	0

3.3 Clinically significant disclosures (CSDs)

Offender managers reported that 254 offenders from the polygraph group and 155 from the comparison group had made *at least* one CSD since their release from custody. The proportion of polygraph offenders making a CSD is significantly greater than for comparison offenders.²⁰ Furthermore, 572 sessions where a CSD was made are associated with polygraph offenders and 320 with comparison offenders. Appendix 3 contains further statistical information on this.

Total numbers of CSDs

The total numbers of disclosures for the polygraph and comparison groups are 864 and 378 respectively, with some offenders making multiple disclosures. As shown in Table 3.4, the

¹⁸ The numbers of participants in this column are extremely small, and should not be used to draw any firm conclusions.

¹⁹ Because of the small number of offenders with a ‘very high’ RM2000 score, we have created one overall group of high and very high RM2000 offenders.

²⁰ $\chi^2(1, N = 635) = 44.41, p < 0.001$

majority of CSDs for both groups were classified as a ‘change of circumstance/risky behaviour’ (i.e. increased access to children, contact with other known sexual offenders; see Appendix 1). Offenders in the polygraph group made more ‘sexual behaviour’ CSDs, but fewer ‘thoughts, feelings and attitudes’ or ‘historical information’ CSDs compared to the comparison group. This was to be expected, as all of the first polygraph tests, and the vast majority of subsequent tests, were set up to test adherence to licence conditions, which will have related to behaviours associated with increasing risk (e.g. compliance with exclusion zone, not contacting named persons).

Table 3.4: Classifications assigned to CSDs

CSD category	Polygraph (N = 332) % (n)	Comparison (N = 303) % (n)	Significance
Thoughts, feelings and attitudes (e.g. abusive fantasies and desires)	9.0 (78)	15.6 (58)	$p < 0.001$
Sexual behaviour (e.g. use of pornography)	15.5 (131)	5.9 (22)	
Historical information (e.g. admitting unknown offence)	2.7 (23)	11.3 (43)	
Changes of circumstance/risky behaviour (e.g. increased access to children)	72.6 (614)	67.2 (250)	
Total number of CSDs²¹	846	373	1242

Table 3.5 shows the mean number of total CSDs for each group as well as the context of these disclosures. Offenders in the polygraph group made significantly more total CSDs, on average, than offenders in the comparison group (2.60 versus 1.25 respectively), $t(588) = 7.17$, $p < 0.001$. The overall difference between the groups on total CSDs remains constant even when length of time in supervision is accounted for in the analysis, $F(1, 624) = 33.73$, $p < 0.001$. Further statistical information is available in Appendix 3.

²¹ Note that the total numbers of disclosures here do not add up to the total numbers of disclosures reported for the polygraph and comparison groups overall (864 and 378 respectively). This is because 18 polygraph disclosures and five comparison disclosures could not be assigned to a category due to limited information provided by the offender manager when the CSD was collected.

Table 3.5: Mean number of CSDs and disclosure context

Disclosure context	Polygraph (N = 332)	Comparison (N = 303)	Significance
	Mean	Mean	
Polygraph session: disclosures overall	1.49	N/A	
Pre-polygraph interview	0.96	–	
Polygraph test	0.21	–	
Post-polygraph meeting	0.31	–	
Routine supervision: disclosures overall ²²	1.07	1.25	NS
Perceived as pre-polygraph related	0.03	–	
Perceived as post-polygraph related	0.11	–	
Perceived as unrelated to polygraph	0.92	–	
Total disclosures per offender	2.60	1.25	$p < 0.0001$

CSDs in the polygraph session²³

As shown in Table 3.5, the majority of disclosures reported for polygraph offenders occur in the polygraph session itself (*mean* = 1.49). Most of these disclosures are reported to occur in the pre-polygraph interview before the polygraph test itself. This suggests that an impending polygraph test is enough to facilitate disclosures.

CSDs in routine supervision

In between polygraph tests – which occurred six-monthly for offenders where the result was NDI and three-monthly where the result was DI – offenders in the pilot group were supervised in the same way as those in the comparison group. That is, they attended appointments with their offender manager – referred to here as ‘routine supervision’.

As shown in Table 3.5, the mean numbers of CSDs made in routine supervision were not significantly different between the polygraph and comparison groups (1.07 versus 1.25 respectively). However, offender managers responsible for polygraph offenders reported that a small number of disclosures were made in routine supervision, which may have been due either to knowledge of an impending polygraph or as a result of discussing the outcome from a previous polygraph.

²² All supervision disclosures refer to disclosures made during a normal supervision session. However, offender managers commented on whether the disclosure made in supervision appeared to be made as the result of a forthcoming polygraph (i.e. ‘pre-polygraph’), as the result of a previous polygraph (i.e. ‘post-polygraph’), or whether the disclosure appeared completely unconnected with polygraph testing (i.e. ‘unrelated to polygraph’).

²³ The polygraph session includes the pre-polygraph interview, the actual polygraph test and the post-test interview with the polygrapher and the offender manager.

CSDs and RM2000 category, offence type and treatment experience

The relationship between CSDs and RM2000 risk category, offence type and treatment experience was examined to see whether the mandatory polygraph licence condition is having more of an impact on CSDs for particular groups of sexual offenders.

Although disclosures for both the polygraph and control groups increase as risk category rises, the mandatory polygraph condition does not appear to exert any differential impact on CSDs for sexual offenders of different risk categories $F(2, 568) = 5.48, p = 0.43$. All sexual offenders (i.e. low-, medium-, and high-/very high-risk) make significantly more CSDs in the polygraph group compared with the comparison group (all $ps < 0.05$; see Table 3.6).

Table 3.6: Mean number of total CSDs according to RM2000 category

RM2000 category	Polygraph (<i>N</i> = 322)	Comparison (<i>N</i> = 252)
	Mean (<i>n</i>)	Mean (<i>n</i>)
Low	2.04 (<i>n</i> = 104)	.99 (<i>n</i> = 92)
Medium	2.64 (<i>n</i> = 118)	1.05 (<i>n</i> = 82)
High/very high ²⁴	3.02 (<i>n</i> = 100)	2.03 (<i>n</i> = 78)

The mandatory polygraph condition does not appear to exert any differential impact on CSDs for sexual offenders of different offence types $F(3, 611) = 0.15, p = 0.93$. All sexual offenders, whatever their index offence type, make significantly more CSDs in the polygraph group compared with the comparison group ($ps < 0.05$; see Table 3.7).

Table 3.7: Mean number of overall CSDs according to offence type

Index offence type ²⁵	Polygraph (<i>N</i> = 325)	Comparison (<i>N</i> = 294)
	Mean (<i>n</i>)	Mean (<i>n</i>)
Adult (rape, sexual assault)	2.48 (<i>n</i> = 65)	1.11 (<i>n</i> = 65)
Child (contact)	2.62 (<i>n</i> = 199)	1.27 (<i>n</i> = 188)
Pornography (images, internet)	2.39 (<i>n</i> = 33)	1.23 (<i>n</i> = 26)
Child (contact) + pornography	3.29 (<i>n</i> = 28)	1.47 (<i>n</i> = 15)

The mandatory polygraph condition does not appear to exert any differential impact on CSDs for sexual offenders with different sexual offender treatment experiences $F(1, 631) = 0.30, p = 0.59$. All sexual offenders (whether treated or untreated) make significantly more CSDs in the polygraph group compared with the comparison group (all $ps < 0.05$; see Table 3.8).

²⁴ Because of the small number of offenders with a 'very high' RM2000 score (17 polygraph and 13 comparison), we have created one combined group of high and very high RM2000 offenders.

²⁵ Because of the small number of offenders with an index offence type of 'children and adults' (five polygraph and seven comparison) or 'vulnerable adult' (two polygraph and two comparison), we have excluded them from the analysis here.

Table 3.8: Mean number of overall CSDs according to treatment experience

Offence type	Polygraph (<i>N</i> = 332)	Comparison (<i>N</i> = 303)
	Mean (<i>n</i>)	Mean (<i>n</i>)
Received sex offender treatment ²⁶	2.81 (<i>n</i> = 140)	1.63 (<i>n</i> = 100)
Never received sex offender treatment	2.45 (<i>n</i> = 192)	1.06 (<i>n</i> = 203)

CSDs and test experience or outcome

Sixty-six polygraph offenders had attended three successful polygraph tests and had data on CSDs collected from their offender manager.²⁷ Although there is a trend for the mean number of CSDs made in the polygraph session to decline as offenders receive more polygraph tests (0.98 CSDs in the first test, 0.77 CSDs in the second test, and 0.47 CSDs in the third test), this difference was not statistically significant $F(2, 64) = 2.87, p = 0.06$.

Table 3.9 shows the mean numbers of CSDs reported for these offenders in the polygraph session, according to test outcome (i.e. DI, NDI, INC or IR). The table shows that as offenders gain experience of polygraph testing, the number of offenders classified as having a test outcome of 'deception indicated' decreases and the number of offenders classified as having a test outcome of 'no deception indicated' increases (cf. Table 3.2).

During the first polygraph session, polygraph offenders made significantly more total CSDs when they received a 'deception indicated' test result compared to either a 'no deception indicated' result (1.57 versus 0.17 respectively, $p < 0.001$) or an 'inconclusive result' (1.57 versus 0.30 respectively, $p < 0.05$). However, during the second and third polygraph tests, these same offenders made statistically similar levels of CSDs regardless of the test result received. This suggests that offenders are most likely to make CSDs during a first test if they receive a 'deception indicated' result.

²⁶ This category includes all offenders who have ever attended SOTP, regardless of whether the treatment programme was completed.

²⁷ There were 61 offenders who had experienced three tests only, and the remainder had been scheduled for or received more than three tests. All offenders with CSD data for three tests are included for analysis purposes here.

Table 3.9: Mean number of CSDs according to polygraph test and test result (n = 66)

Polygraph test	Test result				Overall mean number of CSDs
	DI	NDI	INC	IR ²⁸	
1	Mean (Range) 1.57 ²⁹ (0-8 ³⁰) ^{a31} n = 30	Mean (Range) 0.17 (0-1) ^b n = 24	Mean (Range) 0.30 (0-2) ^b n = 10	Mean (Range) 5.5 (0-11) ³² n = 2	0.98
2	1.00 (0-5) n = 19	0.47 (0-5) n = 32	1.25 ³³ (0-10) ³⁴ n = 12	0.67 (0-1) n = 3	0.77
3	0.86 (0-3) n = 14	0.32 (0-3) n = 41	0.44 (0-2) n = 9	1.00 (0-2) n = 2	0.47

Note: Although each row refers to the same 66 offenders, these offenders' test outcomes could differ in different polygraph tests (i.e. the 19 offenders showing a DI at test 2 are not necessarily the same offenders that showed a DI at test 1).

3.4 Impact of CSDs

When an offender made one or more CSDs during a session (either a polygraph session or supervision session), the responsible offender manager was asked to report on the actions that they took following the session, as well as to rate the seriousness of the disclosure(s), during the follow-up research phone call (see Q17 in the Data Capture Form in Appendix 1 for definitions).

Actions taken following CSDs

Offender managers in the polygraph group reported taking a total of 1,120 actions as a result of sessions where CSDs were made, and offender managers in the comparison group reported taking a total of 611 actions, as shown in Table 3.10. For further statistical information, see Appendix 3.

Statistically significant greater proportions of polygraph offender managers, compared to comparison offender managers, reported having taken *at least* one action of increasing supervision/controls, informing a MAPP meeting/process, informing a third party, changing supervision focus, or issuing a warning to an offender.

²⁸ This column holds extremely small numbers of participants and is not included in our analysis.

²⁹ 5% trimmed mean = 1.35

³⁰ The majority of offenders made up to four CSDs. One offender made five CSDs, and one made eight CSDs.

³¹ Subscripts that differ indicate a statistically significant difference. This is the standard way in research to show differences between means.

³² One offender made no CSDs and one made 11 CSDs.

³³ 5% trimmed mean = 0.83

³⁴ The majority of offenders made up to two CSDs. One offender made ten CSDs.

This indicates that the pilot may have raised awareness among offender managers in recognising CSDs, and of the need for action following CSDs.

Table 3.10: Actions taken by offender managers (N = 635) as a result of CSDs

Action taken	Polygraph (N = 332)	Comparison (N = 303)
Decreased risk assessment	9	5
Increased risk assessment	39	23
Decreased supervision/controls	0	4
Increased supervision/controls	83	49
Informed third party (e.g. police)	367	202
Informed MAPPA ³⁵	94	35
Changed focus of treatment	36	42
Changed focus of supervision	266	181
Warning issued to offender	66	26
Recommended recall	25	11
Other (e.g. worked with other offender manager)	35	33
Total³⁶	1120	611

Recalls

Offender managers supervising offenders on licence must take enforcement action when the offender breaches a licence condition. An offender must be recalled to prison if, after two warnings, he or she breaches a condition for the third time, but if the breach is serious they can be recalled at the first or second breach.

A total of 70 polygraph offenders were recalled to custody compared with 42 of the comparison group. Just under one-third of recalls for polygraph offenders ($n = 22$) were reported by their offender manager as being polygraph-related.

Seriousness of CSDs

The seriousness of disclosures, as assessed by each offender manager following a session (see Q6 in Appendix 1), is outlined in Table 3.11. Offender managers did not rate each disclosure for seriousness *per se*. Rather, they rated the seriousness of one or more disclosure(s) made at one discrete time point (i.e. a supervision session or polygraph session). For example, if an offender disclosed two pieces of information in one supervision session (e.g. starting a new relationship *and* coming into contact with children) then the offender manager rated the *session* for seriousness rather than each separate disclosure. A

³⁵ Multi-Agency Public Protection Arrangements.

³⁶ Offender managers may take multiple actions as a result of a CSD.

total of 572 sessions where a CSD was made were associated with polygraph offenders and 320 with comparison offenders.

The seriousness assigned to CSDs by offender managers did differ between the pilot and comparison groups, $\chi^2(4, N = 892) = 15.03, p = 0.005$. However, CSD seriousness ratings of low, high and very high are similar across the groups, $\chi^2(3, N = 892) = 7.48, p = 0.06$, and so the overall difference appears to be driven by the higher proportion of offenders judged to have reduced their risk associated with comparison offenders' supervision sessions. However, there does appear to be a trend towards a higher number of 'low' and 'medium' assignments associated with polygraph offenders' supervision sessions in which CSDs were made, compared to comparison offenders.

Table 3.11: Seriousness assigned to supervision sessions in which CSDs were made

Seriousness	Polygraph	Comparison	Significance
	(N = 572 Sessions) % (n)	(N = 320 Sessions) % (n)	
Low	27.1 (155)	23.1 (74)	p = 0.005
Medium	48.3 (276)	41.5 (133)	
High	17.5 (100)	24.1 (77)	
Very high	4.0 (23)	4.1 (13)	
No seriousness: reduced risk	3.1 (18)	7.2 (23)	

3.5 Offender managers' perception of the polygraph

Perceptions of the usefulness of the polygraph (rated on a scale of 0-7) for aiding offender supervision were collected after each polygraph test,³⁷ and the findings are presented in Table 3.12. At all stages of testing, offender managers reported finding the polygraph extremely helpful for managing offenders generally, as well as for individual cases. These perceptions of helpfulness remained stable as offender managers gained more experience of the testing process (i.e. across tests 1, 2, 3 and 4). Offender managers also reported finding the polygraph useful in supervising their individual offender(s), either because it disclosed information about risk that could be challenged or discussed with the offender, or gave them confidence that the offender was keeping to his or her licence conditions.

³⁷ Note, however, that N reported in Table 4.12 does not give the total successful phone call figures, as this aspect of data collection was introduced part way through the research.

Table 3.12: Offender managers' perception of the polygraph (N = 307)

	Test 1 (N = 307)	Test 2 (N = 168)	Test 3 (N = 72)	Test 4³⁸ (N = 13)
Helpfulness for managing offenders generally (1-7) ³⁹				
<i>Mean</i>	6.18	6.11	6.15	6.15
<i>Range</i>	(1-7)	(3-7)	(2-7)	(1-7)
Helpfulness for managing offenders individually (1-7)				
<i>Mean</i>	5.61	5.84	5.78	6.23
<i>Range</i>	(1-7)	(1-7)	(3-7)	(4-7)
Test outcome useful % (n) ⁴⁰				
Yes	86.9 (265)	85.6 (143)	83.3 (60)	92.3 (12)
No	13.1 (40)	13.8 (23)	16.7 (12)	7.7 (1)
How is outcome useful? ⁴¹ % (n)				
Discloses risk/easier to challenge risk	27.5 (73)	31.5 (45)	35.0 (21)	25.0 (3)
Gives confidence offender is sticking to conditions	41.1 (109)	46.2 (66)	53.3 (32)	58.3 (7)
Discloses risk and gives confidence	6.8 (18)	4.9 (7)	0	0
Enables offender manager to devise strategies to reduce risk	7.2 (19)	7.7 (11)	6.7 (4)	0
Aids offender to talk about difficult issues	2.3 (6)	1.4 (2)	1.7 (1)	0
Enabled recall	3.0 (8)	1.4 (2)	0	0
No reason given	11.3 (30)	7.0 (10)	3.3 (2)	1.7 (2)

³⁸ Note, fifth test data is not presented here. Two offender managers reported on their perception of the polygraph for test 5.

³⁹ Where 1 = not at all helpful and 7 = completely helpful.

⁴⁰ Note, *n* may differ slightly from overall column *N* since these questions were introduced part way through the data collection.

⁴¹ Note that this question invites offender managers to make qualitative responses which have then been categorised into the classifications specified below.

4. Qualitative research findings

4.1 Contextual information

A preliminary study was conducted at the start of the pilot to investigate the views of offender managers in the polygraph pilot areas. Five focus groups, with 24 offender managers in total, were completed alongside additional in-depth interviews. The results suggested that offender managers were generally satisfied with using the polygraph in addition to their usual supervision management procedures. Further in-depth interviews with OMPPG officials ($n = 3$) and the polygraphers ($n = 3$) also highlighted overall satisfaction with the implementation of polygraph testing as a whole. This preliminary study provided the backdrop for the more in-depth qualitative study reported here.

Altogether, 47 interviews were carried out with:

- 12 offender managers of polygraph offenders;
- 10 offender managers of comparison offenders;
- 15 polygraph offenders;
- 10 comparison offenders.

(See Appendix 4 for the characteristics of all participants.)

Interviews were conducted to determine qualitatively offenders' and offender managers' experience of supervision, with and without the use of the polygraph. For every offender we interviewed, we also interviewed their offender manager. Interviewees were drawn randomly and were representative of the wider demographics of participants in the quantitative pilot study. Three polygraph offender managers were each supervising two of the polygraph offenders interviewed (see Appendix 5 for interview schedules).

Unless stated otherwise, the figures reported refer to the number of comments (see Appendix 6 for details), since many offender managers referred to more than one offender they had supervised, and many offenders referred to more than one polygraph test or supervision session.

4.2 Offender managers' perceptions of supervision and the polygraph

Polygraph offender managers

All but one of the polygraph offender managers stated that they had received full briefing on the polygraph and its aims. All but one also reported that the polygraph had been professionally conducted. All offender managers stated that they preferred supervision with the polygraph and that it was a useful tool for managing offenders. Nearly all reported that the polygraph had positively influenced their management of offenders by enabling them to tackle themes relevant to offences and risk during supervision, to be more challenging and to supervise offenders with more confidence:

... it kind of gives him ways to talk about masturbations, fantasies etc., because they know that they're going to be doing that during the polygraph testing so it's trying to make that commonplace in supervision... it doesn't feel as uncomfortable... kind of makes it more open (POM3)

Some offender managers stated that supervision improved when polygraph results showed no deception, as it reassured them of the offender's honesty and gave the offender more confidence as to their understanding of and ability to stick with their licence conditions. When deception was indicated, offender managers were able to challenge the offender regarding the result and take action (e.g. recall/warnings):

... often we're just relying on self-disclosures... we can't always check the validity of what they're saying... the polygraph gives you that back-up... it gives you the opportunity to find out whether the offender has been deceiving at all... gives us that opportunity to probe further into those specific questions (POM4)

In terms of disclosures, some stated that offenders made disclosures during supervision sessions because they knew a polygraph test was about to happen, but more responses indicated that disclosures occurred during the polygraph session (supporting the quantitative findings outlined in Table 3.5). All offender managers stated their belief that the disclosures would not have been made without the polygraph. Other responses indicated that offenders were often unclear about the meaning of licence conditions and that the polygraph helped to clarify misunderstandings. All offender managers said that they did not need additional resources in their general practice.

Comparison offender managers

The majority of offender managers expressed beliefs that offenders were honest and open during supervision. However, some claimed that supervision sessions tended to focus more on offenders' needs (e.g. employment problems) rather than on offence- or risk-related issues. Several other statements indicated offender managers' beliefs that supervision was not sufficiently challenging. Some reported having doubts about offenders' honesty, and several indicated that the polygraph would be useful for providing supportive evidence:

... it could be good because it's easy to make assumptions and get comfortable in thinking that he seems all right... it might keep you a little more cautious (COM5)

... and the ones motivated to offend: obviously the polygraph would be a huge tool in the toolbox (COM6)

Some offender managers expressed concerns that using the polygraph would disrupt the trust established with offenders. Two comments indicated beliefs that professionals are better judges of whether or not offenders are truthful. More comments indicated that offender managers saw potential value in using the polygraph – particularly with sexual offenders:

... sex offenders are devious... they would not be able to commit their offences if they weren't... so something like that would definitely help to encourage them to be more honest (COM2)

Many reported that supervision made offenders think more about their licence conditions and behaviour, and that most offenders complied with requests made during supervision. Even though some offender managers commented that they had issued warnings, only one reported that a disclosure had been made during supervision. All offender managers believed that additional resources were needed to support general supervision of offenders.

4.3 Offenders' perceptions of supervision and the polygraph

Polygraph offenders

A large number of statements made by polygraph offenders showed that they did not trust the polygraph. Most said this was because it is not 100% accurate and/or cannot be used in court. Most offenders were happy with the way their test(s) had been conducted and that the polygraphers had behaved professionally. The majority of offenders claimed that being tested made them think more about their licence conditions, and nearly half said it made them more inclined to abide by their licence conditions:

... licence conditions are there as a control measure... but you bend or change them to suit the life that you're building... the polygraph makes them more rigid, you tend to live by them (POF8)

Several statements indicated that the polygraph did not provoke more discussion with offender managers, and some statements indicated that offenders were not happy with a machine that implied that they had not been truthful. Other claims, however, indicated that the polygraph made them more honest with their offender manager and that being tested resulted in more open discussions. Nearly half the offenders admitted making disclosures during the polygraph session, and most of these admitted they would not have done so if they were not being tested. The same number had not made any disclosures (one was unclear). Even though many comments reflected offenders' distrust of the polygraph, several statements indicated offenders' beliefs that the polygraph should be used with all offenders. Some stated that they had met sexual offenders who were devious and that the polygraph would be useful for these people.

It's hard to say it's changed my behaviour... but I'm tempted to say that it's a good idea despite the fact that I detest it (POF11)

Comparison offenders

The majority of statements made by comparison offenders indicated that they felt able to discuss any issue with their offender manager and that they were completely honest during supervision sessions. However, many comments reflected offenders' beliefs that their behaviour had not been influenced or changed through supervision. Only one claimed to give more thought to licence conditions, and only one commented that they adhered more to their licence conditions because of supervision. Although no offenders admitted making a disclosure, three comments indicated that supervision had increased their honesty with other people. Most comments suggested that offenders did not believe the polygraph would be useful for them since they were already being open and honest, but several statements indicated beliefs that the polygraph would be useful with sexual offenders:

Well, yeah, I think so cos there are some people that really think they can get away with it... I do think everyone should be put on that thing, lie detector test, whatever (COF4)

5. Economic evaluation

5.1 Contextual information

This chapter addresses the preliminary cost-effectiveness analysis (CEA) of the polygraph pilot. The choice of CEA as opposed to cost–benefit analysis (CBA) was a result of data limitations as well as inherent difficulties associated with implementing this kind of study. The main difficulty rests with assigning economic value to particular outcomes (e.g. lower reoffending rates). This can be controversial, given that there is no standardised procedure for estimating such costs.

A unique characteristic of this research is that the mandatory polygraph only changes one aspect of how prisoners out on licence are treated. Thus the polygraph intervention is very subtle, in that it potentially enhances existing monitoring/supervision arrangements, as opposed to replacing them. So there are few differences between conventional supervision and supervision which includes mandatory polygraph testing.

Wood *et al* (2010), in related research, have introduced a typology of disclosures. They identified four themes:

- 1 Risky behaviour and situations.
- 2 Historical information.
- 3 Thoughts, feelings and fantasies.
- 4 Sexual behaviour.

The evaluation of the mandatory pilot showed that a disclosure rarely led to a change in the formal risk category, although disclosures could result in a change in offender risk management plans. The type of changes implemented include frequency and/or style of supervision and other related actions. Given the lack of microeconomic data that exists in relation to offender supervision activities, it was difficult to identify the costs (and benefits) associated with these changes. The only easily identifiable change in supervision that could be economically assessed is if the offender was recalled to prison. It is likely that, although changes in monitoring and supervision may occur on a case-by-case basis, they would result in a change in staff workloads but not additional costs as far as the relevant government agencies are concerned.

In the existing literature, evaluations of offender management applications of CEA or CBA are very rare. Useful surveys of the literature on evaluation of correctional interventions are provided by Welsh and Farrington (2000), and Marsh, Chalfin and Roman (2008). What is

apparent from these reviews is that there is a lack of data with which to conduct robust economic analysis of correctional interventions. Indeed, many of the existing economic studies have been conducted in the US. Overall, there is an obvious gap in the literature as far as economic evaluations are concerned. There are also no existing economic studies that attempt to evaluate the use of polygraph testing in the context employed in this pilot study.

5.2 Methods and implementation of CEA

Turning to the methods employed when undertaking a CEA, it is normal to assume that the costs of the policy or project being examined are divided by a defined outcome of the policy or project. In the current project, the costs in question were those that relate to the implementation of polygraph testing and the outcome was the number of CSDs and *actions* (see Table 3.10) taken by an offender manager. As noted earlier, unless the offender is recalled it is difficult to identify how the composition of costs change. Thus, only the economic costs associated with the numerator in the equation below are those relating to the polygraph procedure.

The Incremental Cost-Effectiveness Ratio (ICER) was used to compare the cost-effectiveness of polygraph supervision relative to standard supervision conditions. This method of calculating and analysing CEA ratios is commonly used in designs comparing an experimental treatment group with that of a standard control group (Drummond, 1990; Weatherly *et al*, 2009).

In short, the ICER describes the ratio of the cost differences (between the two conditions) to the differences in effects (between the two conditions), and is expressed in Equation 1⁴² as:

$$\frac{\bar{C}_e - \bar{C}_c}{\bar{E}_e - \bar{E}_c} = ICER$$

where the numerator is the mean difference in costs between the experimental (e) and control group (c) (i.e. the polygraph group and standard supervision group), and the denominator is the mean difference in effects of each of these groups respectively. Therefore, estimates of the supervision costs divided by the numbers of CSDs for each of the polygraph and standard conditions are assessed. Thus, the estimate will indicate the cost per supervision strategy for each CSD. However, as only the observed costs associated with the polygraph were available, the costs associated with the control group were assumed to be

⁴² Average cost of experimental conditions minus the average cost of comparison conditions, all divided by the average number of clinical disclosures in the experimental group minus the average number of clinical disclosures in the comparison group. This equals the Incremental Cost-Effectiveness Ratio (ICER).

zero. So the ICER could be estimated, albeit assuming that the only cost difference in terms of implementation related to the polygraph testing itself.⁴³

The final aspect of the analysis relates to the fact that the difference in numbers of CSDs between the experimental and control groups was a random variable and was affected by the size of the trial. As such, it was necessary to reflect the random nature of this difference by generating confidence intervals. In the health economics literature the approach taken to dealing with the random nature of the experimental setting is to estimate cost-effectiveness acceptability curves (CEAC) (see Löthgren and Zethraeus, 2000). However, unlike existing applications of this approach in the literature, the research team did not have any random effect on the cost side of the experiment. This was because the cost of undertaking a polygraph test was fixed. Therefore, the approach taken amounted to generating a probability distribution for the treatment (polygraph) effect and deriving the associated confidence intervals from the resulting sampling distribution.

Specifically, the non-parametric bootstrap algorithm was performed that employed the following steps:

Step 1: Resample (with replacement) the number of CSDs for c and e to generate sample averages for both.

Step 2: With the new sample, generate the difference between the averages for c and e.

Step 3: Repeat this B times (e.g. B = 10,000), which will allow for the construction of a sampling distribution which can be used to generate associated confidence intervals.

The key piece of economic data was the cost of conducting a polygraph test. Each polygraph test cost £300 (inclusive of VAT, £360 per test).⁴⁴ In addition to cost data, data on the total number of CSDs recorded from the polygraph and control groups was available.

In setting up the data to undertake the ICER analysis it was noted that what was recorded was CSDs within a given time period. Within a time period one, or more, or no, polygraph

⁴³ In terms of costs, a full economic evaluation would need to collect data on all routine supervision and third party contacts in both groups in order to adequately assess the economic impact of the tests.

⁴⁴ This cost was provided by NOMS OMPPG. This is the full cost of the equipment plus the time of the person conducting the test. However, due to limitations around other relevant costs, this figure should be seen as the minimum and is unlikely to represent the full costs associated with polygraph testing. The caveat should be noted that this may possibly introduce bias in favour of the polygraph.

tests could have been conducted, and the number of supervision sessions could also vary. So, many of the CSDs recorded for the treatment group (i.e. the polygraph group) included CSDs that had been provided in the course of normal supervision interviews.

Finally, to construct the data used in the statistical analysis, the data generated by an individual across different time periods was considered to be independent of previous periods. Thus, the ICER was performed in terms of CSDs per period. By configuring the data in this way there were 845 observations for the control and 883 for the treatment group, with an average number of CSDs per period of 0.447 for the control and 0.978 for the treatment group.

5.3 Results

The results of the non-parametric bootstrap analysis are based on 10,000 draws for the bootstrap. The average of the average difference is 0.54, with a minimum of 0.24 and a maximum of 0.836. To keep calculation simple, the management costs associated with implementing the polygraph test procedures (or VAT) were not included. This means that the result presented can be considered the lower end of the scale in relation to cost per CSD. So calculating the ICER based on the average result of the difference results in the following calculation:⁴⁵

$$\frac{\bar{C}_t - \bar{C}_c}{\bar{E}_t - \bar{E}_c} = \frac{300 - 0}{0.54} = 556$$

This result implies that the cost of an additional CSD as a result of employing the polygraph test was £556.⁴⁶

Taking account of the random nature of the experimental approach and the associated size of effect yielded the following 95% confidence interval values: 0.32 (lower bound) and 0.75 (upper bound). These estimates can be used to recalculate the ICER, resulting in estimates of £400 and £937.50.

⁴⁵ Average cost of experimental conditions minus the average cost of comparison conditions, all divided by the average number of clinical disclosures in the experimental group minus the average number of clinical disclosures in the comparison group. This equals the Incremental Cost-Effectiveness Ratio (ICER).

⁴⁶ A future analysis that could be considered might be the cost-effectiveness of passing the test without CSDs.

6. Conclusions

The research outlined in this report provides findings of the impact of mandatory polygraph testing for sexual offenders on licence in the community. The findings suggest that the polygraph increases the chances that a sexual offender under supervision in the community will reveal information relevant for their management, supervision, treatment or risk assessment.

More specifically, the findings indicate that:

- Polygraph offenders had an increased likelihood of making a CSD compared with offenders in the comparison group. Offenders in the polygraph group also made significantly more CSDs than offenders in the comparison group (*mean* = 2.60 versus 1.25 CSDs respectively). More than half of these disclosures occurred in the context of the polygraph session itself. Over two-thirds of these disclosures related to 'changes of circumstance/risky behaviour' associated with increased access to children, changes in relationship status, licence breaches, and contact with other known sexual offenders. Most importantly, the difference in CSDs between the two groups remained constant even when length of time in supervision was accounted for in the analysis.
- Overall, analysis of all offenders in the polygraph group shows that they were most likely to pass their first polygraph test with a 'no deception indicated' (NDI) result (50.6%). However, just under one-third received a 'deception indicated' (DI) result (28.6%), suggesting that they had failed to reveal information relevant for their management, supervision, treatment or risk assessment. The percentage of offenders receiving a DI result decreases as they gain experience of polygraph testing. This appears to suggest that offenders began to engage more appropriately in supervision (i.e. through discussing information relevant to their management) and/or deciding to comply with their licence conditions following the experience of being polygraph tested. The qualitative interviews with offenders involved in the pilot substantiate these conclusions. The majority of polygraph offenders interviewed stated that being tested made them think more about their licence conditions, and nearly half stated that the polygraph made them more likely to abide by their licence conditions. However, it should be acknowledged that there are other reasons why DI results may decrease over time (e.g. it is possible that offenders may learn how to 'beat' the polygraph).

- There is a trend for medium- and high-/very high-risk offenders to be more likely to receive a DI result on their first test, compared to low-risk offenders. However, the percentage of medium- and high-/very high-risk offenders receiving a DI result decreases at test 2, when offenders have gained experience of polygraph testing. The numbers of test 3 polygraphs were too small to draw any meaningful conclusions. This may reflect that offenders become desensitised to the testing experience over time, or that they are more truthful the longer they are on licence in the community.
- Although there is a trend for the average number of CSDs made in the polygraph session to decline as offenders experienced more polygraph testing (0.98 CSDs at test 1, 0.77 CSDs at test 2, 0.47 at test 3), this difference did not reach statistical significance. During a first test, statistically, offenders made significantly more CSDs following a DI result compared with an NDI or inconclusive result (INC). This difference dissipated on subsequent tests when offenders received fewer DI test results.
- Although the number of CSDs made increased with risk, this was the case for both the polygraph and the comparison groups. Polygraph offenders of low-, medium-, high- and very high-risk all made statistically significantly more CSDs than offenders of the same risk category in the comparison group. Polygraph offenders convicted of an index offence involving children, adults, pornography, or children and pornography all made statistically significantly more CSDs than offenders of the same index offence category in the comparison group. Finally, polygraph offenders who had received sexual offender treatment or no sexual offender treatment all made statistically significantly more CSDs than offenders of the same treatment experience category in the comparison group.
- After becoming aware of a CSD, statistically significantly greater proportions of polygraph offender managers took at least one action that involved increasing supervision/controls, informing MAPPA, informing a third party, changing supervision focus, or issuing a warning. Just under one-third of recalls to custody in the polygraph group were associated with polygraph testing.
- The seriousness assigned to supervision sessions where CSDs were made did not appear to vary substantially between the polygraph and comparison groups.
- Offender managers who supervised an offender undergoing one or more polygraph tests reported finding the polygraph testing helpful. The majority also reported finding the test outcome helpful, since it disclosed risk or provided them with confidence that the offender was keeping to their licence conditions.

- Following a preliminary process evaluation study, the qualitative interviews with offender managers and offenders from polygraph and comparison areas suggested key differences in perceptions and experiences of supervision. Polygraph offender managers reported that the polygraph increased their confidence in effectively managing sexual offenders. Some offenders reported that they valued the polygraph test in providing evidence that they were not lying (i.e. that they were complying with the conditions of their licence and supervision) to offender managers and family members. Polygraph offender managers also appear to be more challenging than comparison offender managers, as they use polygraph results to deepen supervision discussions with offenders. In comparison areas, supervision appeared to function more on established trust between offenders and offender managers. Some comparison offender managers expressed discontent that this method of supervision was not sufficiently challenging to offenders. In terms of additional resources, offender managers in comparison areas listed several that they believed they needed to effectively manage offenders. In contrast, polygraph offender managers all stated that they did not need any further resources.
- The cost-effectiveness analysis of the polygraph pilot has estimated the cost of an additional disclosure as a result of using the polygraph to be £556. The true value of this cost may range from £400 to £937.50.

7. Implications

The qualitative interviews conducted with offender managers working under standard supervision conditions showed that they felt they lacked key supervision resources. However, polygraph offender managers perceived themselves to have good supervision resources. These results suggest that offender managers would, on the whole, receive the polygraph positively if it was rolled out nationally. However, any proposed national roll-out of the polygraph as an aid to supervision practices should be underpinned by an appropriate strategic framework associated with the results of this research. There are several points in particular:

- The polygraph could be used with offenders of varying risk level, index offence type, or treatment experience with effective results. Used with these offenders, the polygraph is likely to increase the likelihood of offender managers taking preventative actions to protect the public from harm (e.g. increasing supervision/controls, informing MAPPA, informing a third party, changing supervision focus, or issuing a warning to an offender).
- However, caution should be adopted when implementing the polygraph with subtypes of offenders who were not well represented in our research (e.g. female sexual offenders).
- The polygraph continues to elicit CSDs even as offenders gain experience of testing. However, because offenders seem most likely to make a CSD during a first test, if they receive a DI test result, this suggests that the first testing experience may be the most important for encouraging offenders to comply with and/or understand their licence conditions. Our results also show that medium-, high-, and very high-risk offenders are most likely to have received a DI outcome on their first test.

Given the costs associated with implementing polygraph testing, any potential national roll-out will require a clear model of delivery that is economically viable. Three potential means of achieving this are suggested below:

- 1 Targeting polygraph testing in the supervision of high- or very high-risk sexual offenders. Although the polygraph condition appears to elicit equal numbers of CSDs in all Risk Matrix 2000 categories, this may offer a better allocation of resources. These offenders appear most likely to have a DI result on their first polygraph test. The likelihood of receiving a DI result is greater among offenders with higher RM2000 scores.

- 2** Adopting a model of delivery that provides all sexual offenders with a first polygraph test experience, followed by randomised follow-up testing.
- 3** Reducing the costs associated with polygraph testing by adopting polygraph training and testing 'in house'.

Under each proposed model of delivery, it will be vital for policy staff and supervising offender managers to have a clear understanding of the aims of polygraph testing and of how polygraph testing integrates more broadly with standard supervision processes. Clear national guidelines on polygraph testing will need to be developed, as well as staff training, supervision and support. Ongoing independent monitoring of the implementation of polygraph testing will also be required to ensure best practice and adherence to underlying policy procedures.

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Glossary

CBA – Cost–benefit analysis

CEA – Cost-effectiveness analysis

CEAC – Cost-effectiveness acceptability curves

CSD – Clinically significant disclosure

DI – Deception indicated

ICER – Incremental Cost-Effectiveness Ratio

MAPP – Multi-Agency Public Protection

MAPPA – Multi-Agency Public Protection Arrangements

MoJ – Ministry of Justice

NDI – No deception indicated

NOMS – National Offender Management Service

OM – offender manager(s)

OMPPG – Offender Management and Public Protection Group

OMSAS – Offender Management and Sentencing Analytical Services

RM2000 – Risk Matrix 2000

SOTP – Sex Offender Treatment Programme

Appendix 1

Example disclosure capture form

OFFENDER DISCLOSURE
PILOT GROUP (1st PHONE CALL)
 Your name _____
 Date of call _____

Offender ID		Offender manager	
Date of most recent supervision session	Click here to enter a date.	Date of next supervision session	Click here to enter a date.

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Is the offender manager able to refer to the file on the offender that you are calling about? YES NO *

If No, ask the offender manager to get the file; hold the line if necessary.

I am going to ask you some questions about disclosures made by your offender. In the first part of this short interview I will ask you about disclosures made in the polygraph session. In the second part I will ask you about disclosures made during supervision or at other times.

PART 1: Polygraph session disclosures

1. Think back to the previous polygraph session that your offender had. When we are talking about a polygraph session we mean in the test, the interview directly before the test, and the subsequent meeting directly following the test. Did the offender disclose any new information in the polygraph session that is relevant to their risk, management, supervision or treatment? YES
 NO

Did the offender disclose any other new information in the polygraph session that did not result in, or contribute to, any change to their risk, management, supervision or treatment? YES NO

***Ensure that you have the offender’s polygraph report in front of you. If there appears to be any discrepancy between what the offender manager is reporting and what is in front of you, ask them to clarify.**

2. How many new disclosures that are relevant to their risk, management, supervision or treatment did they make? _____

How many new disclosures were made that did not result in, or contribute to, any change to their risk, management, supervision or treatment? _____

***All further questions relate to those disclosures which resulted in, or contributed to, any change in risk, management, supervision or treatment.**

3. Where in the polygraph process did the disclosures relevant to their risk, management, supervision or treatment occur? Please specify for each disclosure made: Interview directly prior to polygraph, In the polygraph examination itself, In the post-polygraph interview.

What was the disclosure? <i>Write out in full</i>	Where in the polygraph session did the disclosure occur?

Use a separate sheet if necessary.

Polygraph session disclosures

4. What kind of information did the offender disclose? (tick all that apply)

Project managers will categorise from qualitative information

Thoughts, feelings and attitudes		Sexual behaviour	
Abusive fantasies and desires	<input type="checkbox"/>	Sexual behaviour with other adults	<input type="checkbox"/>
Non-abusive fantasies and desires	<input type="checkbox"/>	Sexual behaviour with children	<input type="checkbox"/>
Motivation to offend	<input type="checkbox"/>	Masturbation	<input type="checkbox"/>
Feelings relating to self-esteem/ self-efficacy (or lack of)	<input type="checkbox"/>	Use of print or internet pornography (adults)	<input type="checkbox"/>
Feelings of self-control/risk management	<input type="checkbox"/>	Use of print or internet indecent images of children	<input type="checkbox"/>
Sexual preference for children	<input type="checkbox"/>	Other sexual behaviour (please specify)	<input type="checkbox"/>
Feelings related to sexual performance	<input type="checkbox"/>		
Other thoughts or feelings related to risk (please specify)	<input type="checkbox"/>		
Historical information		Changes of circumstance/risky behaviour	
Admitting a previously unknown offence	<input type="checkbox"/>	Change in existing relationship status	<input type="checkbox"/>
Acknowledgement of severity/increased responsibility for known offence(s) (victim perspective or similar)	<input type="checkbox"/>	New relationship (please specify nature)	<input type="checkbox"/>
Offender as prior victim of sexual abuse	<input type="checkbox"/>	Increased access to children (potential or actual)	<input type="checkbox"/>
Details of sexual history (including consensual/legal acts)	<input type="checkbox"/>	Making contact with children (where a sexual intention is suspected)	<input type="checkbox"/>
Other type of disclosure (please specify)		Access to/contact with other victim types	<input type="checkbox"/>
		Breach of a licence condition	<input type="checkbox"/>
		Other risky behaviour/circumstances (please specify)	<input type="checkbox"/>

5. What triggered the disclosure? (tick all that apply) <i>Read out options</i>			
Direct questioning during the polygraph session	<input type="checkbox"/>	Spontaneous disclosure (please specify circumstances)	<input type="checkbox"/>
Challenging/discussion following a failed polygraph (deception indicated) or inconclusive result	<input type="checkbox"/>	Other (please specify)	<input type="checkbox"/>

6. In terms of risk levels, using the following definitions, how serious do you think the disclosures made were? (please tick one) <i>Read out options</i>			
<p>LOW: Indicative of minor elevation of risk, needing monitoring but no further action (e.g. offender reports an argument with their partner).</p> <p>MEDIUM: Indicative of elevated risk, requiring further investigation, and possible action based on that investigation, but not requiring action by itself (e.g. offender reports accidentally meeting a child relative at a family event, where other adults were present, and no further contact took place).</p> <p>HIGH: Indicative of elevated risk requiring direct intervention (e.g. offender reports being asked to babysit by a neighbour but refused).</p> <p>VERY HIGH: Indicative of elevated risk requiring immediate action, including recall (e.g. offender admits contact with victim).</p> <p>OTHER: For example, the disclosure did not elevate risk levels, it decreased risk instead.</p>			
LOW <input type="checkbox"/>	MEDIUM <input type="checkbox"/>	HIGH <input type="checkbox"/>	VERY HIGH <input type="checkbox"/>
OTHER (please specify) <input type="checkbox"/>			

7. What impact (if any) did the disclosed information have on your management of this offender? (i.e. what action did you take as a result of this new information?) (tick all that apply) <i>Read out options</i>			
No impact (no changes made to management/supervision/risk assessment/treatment) <i>If YES answered here, check OM's answers on rest of form</i>	<input type="checkbox"/>	It led me to increase my assessment of risk	<input type="checkbox"/>
It led me to decrease my assessment of risk	<input type="checkbox"/>	A warning was issued to the offender re a breach in licence conditions	<input type="checkbox"/>
I recommended recall as a result of the information disclosed	<input type="checkbox"/>	I passed the information disclosed on to MAPPA	<input type="checkbox"/>
It changed the focus of/informed treatment (please specify in what way)	<input type="checkbox"/>	It changed the focus of supervision (please specify in what way)	<input type="checkbox"/>
It led me to increase supervision/external controls	<input type="checkbox"/>	It led me to decrease supervision/external controls	<input type="checkbox"/>
I informed a third party (e.g. offender's family/partner, police, social services – please specify)	<input type="checkbox"/>	Other (please specify)	<input type="checkbox"/>

SUPERVISION/OTHER DISCLOSURES

11. Since the offender's release date, how many supervision sessions has he/she had?

12. During any of these supervision sessions, has the offender disclosed any new information that is relevant to their risk, management, supervision or treatment? YES NO

Did the offender disclose any other new information in the supervision sessions that did not result in, or contribute to, any change to their risk, management, supervision or treatment? YES NO

13. How many new disclosures that are relevant to their risk, management, supervision or treatment did they make? _____

How many new disclosures were made that did not result in, or contribute to, any change to their risk, management, supervision or treatment? _____

***All further questions relate to those disclosures which resulted in, or contributed to, any change in risk, management, supervision or treatment.**

14. Did the disclosures occur at different times?

Please write the exact number of supervision sessions in which the disclosure(s) occurred.

NOTE – If disclosures have been made at different times then questions 15, 16, 17, and 18 need to be completed for EACH TIME a disclosure/disclosures were made (e.g. each supervision session).

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Time 1

15. What kind of information did the offender disclose?

Describe them here: project managers will later code them into the boxes below

Thoughts, feelings and attitudes		Sexual behaviour	
Abusive fantasies and desires	<input type="checkbox"/>	Sexual behaviour with other adults	<input type="checkbox"/>
Non-abusive fantasies and desires	<input type="checkbox"/>	Sexual behaviour with children	<input type="checkbox"/>
Motivation to offend	<input type="checkbox"/>	Masturbation	<input type="checkbox"/>
Feelings relating to self-esteem/ self-efficacy (or lack of)	<input type="checkbox"/>	Use of print or internet pornography (adults)	<input type="checkbox"/>
Feelings of self-control/risk management	<input type="checkbox"/>	Use of print or internet indecent images of children	<input type="checkbox"/>

Sexual preference for children	<input type="checkbox"/>	Other sexual behaviour (please specify)	<input type="checkbox"/>
Feelings related to sexual performance	<input type="checkbox"/>		
Other thoughts or feelings related to risk (please specify)	<input type="checkbox"/>		
Historical information		Changes of circumstance/risky behaviour	
Admitting a previously unknown offence	<input type="checkbox"/>	Change in existing relationship status	<input type="checkbox"/>
Acknowledgement of severity/increased responsibility for known offence(s) (victim perspective or similar)	<input type="checkbox"/>	New relationship (please specify nature)	<input type="checkbox"/>
Offender as prior victim of sexual abuse	<input type="checkbox"/>	Increased access to children (potential or actual)	<input type="checkbox"/>
Details of sexual history (including consensual/legal acts)	<input type="checkbox"/>	Making contact with children (where a sexual intention is suspected)	<input type="checkbox"/>
Other type of disclosure (please specify)		Access to/contact with other victim types	<input type="checkbox"/>
		Breach of a licence condition	<input type="checkbox"/>
		Other risky behaviour/circumstances (please specify)	<input type="checkbox"/>

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16. What triggered the disclosure? (tick all that apply)			
A direct question during routine supervision	<input type="checkbox"/>	Spontaneous disclosure (please specify circumstances)	<input type="checkbox"/>
I presented third party evidence to the offender and they disclosed as a result of this	<input type="checkbox"/>	Other (please specify)	<input type="checkbox"/>
Challenging/discussion during supervision following a failed polygraph (deception indicated) or inconclusive result	<input type="checkbox"/>	Forthcoming polygraph session	<input type="checkbox"/>

17. In terms of risk levels, using the following definitions, how serious do you think the disclosures made were? (please tick one) *Read out options*

LOW: Indicative of minor elevation of risk, needing monitoring but no further action (e.g. offender reports an argument with their partner).

MEDIUM: Indicative of elevated risk, requiring further investigation, and possible action based on that investigation, but not requiring action by itself (e.g. offender reports accidentally meeting a child relative at a family event, where other adults were present, and no further contact took place).

HIGH: Indicative of elevated risk requiring direct intervention (e.g. offender reports being asked to babysit by a neighbour but refused).

VERY HIGH: Indicative of elevated risk requiring immediate action, including recall (e.g. offender admits contact with victim)

OTHER: For example, the disclosure did not elevate risk levels, it decreased risk instead.

LOW

MEDIUM

HIGH

VERY HIGH

OTHER (please specify)

18. What impact (if any) did the disclosed information have on your management of this offender? (i.e. what action did you take as a result of this new information?) (tick all that apply) *Read out options*

No impact (no changes made to management/supervision/risk assessment/treatment) <i>If YES answered here, check OM's answers on rest of form</i>	<input type="checkbox"/>	It led me to increase my assessment of risk	<input type="checkbox"/>
It led me to decrease my assessment of risk	<input type="checkbox"/>	A warning was issued to the offender re a breach in licence conditions	<input type="checkbox"/>
I recommended recall as a result of the information disclosed	<input type="checkbox"/>	I passed the information disclosed on to MAPPA	<input type="checkbox"/>

It changed the focus of/informed treatment (please specify in what way)	<input type="checkbox"/>	It changed the focus of supervision (please specify in what way)	<input type="checkbox"/>
It led me to increase supervision/external controls	<input type="checkbox"/>	It led me to decrease supervision/external controls	<input type="checkbox"/>
I informed a third party (e.g. offender's family/partner, police, social services – please specify)	<input type="checkbox"/>	Other (please specify)	<input type="checkbox"/>

Thank OM

Appendix 2

Data capture information and methodology

Recording demographic and disclosure information

Capturing information

The offender managers responsible for supervising each offender were telephoned by the research team to obtain any required demographic information as well as information about CSDs. For polygraph offenders, the demographic information collected was obtained from the polygraph referral form completed by the referring offender manager. For comparison offenders, the same demographic information was obtained from their offender manager during the first telephone contact described below.

First telephone contact

The first telephone contact made to offender managers was triggered either by receipt of the offender's first polygraph test results (for polygraph offenders) or through notification of an offender's release into one of the comparison areas (for comparison offenders).

In this initial contact, offender managers were asked to provide information about CSDs made since the offender's release. Offender managers in both groups were asked to report on disclosures made as part of routine supervision. Offender managers in the polygraph group were also asked to report on disclosures made as part of the polygraph session⁴⁷ as well as their perception of the usefulness of the polygraph. Offender managers were also required to indicate over how many sessions the disclosures were made, the impact that the disclosure(s) had in terms of their actions taken, and seriousness of the disclosures in terms of risk. (See Appendix 1 for an example disclosure capture form and definitions.)

Repeat telephone contacts

Following the initial contact, offender managers were called at three-month intervals to collect identical information about further CSDs.

⁴⁷ The polygraph session is defined as the test itself, the interview directly before the test, and the subsequent meeting directly following the test.

Appendix 3

Further statistical information

CSDs

The odds of making *at least* one CSD in the polygraph group is 3.1 times greater than in the comparison group (CI = 2.2, 4.4).

Total numbers of CSDs

The difference in total numbers of CSDs between the groups represents a medium to large effect size of 0.60 (Cohen's *d*).

Actions taken following CSDs

The odds of reporting *at least* one action of increasing supervision/controls in the polygraph group is 1.6 times greater than in the comparison group (CI = 1.0, 2.6).

The odds of informing a third party, informing MAPPA, changing the focus of supervision, and issuing a warning to an offender are 2.4 (1.7, 3.4), 2.3 (1.3, 3.8), 2.9 (2.0, 4.0), and 2.7 (1.5, 4.6) respectively.

Appendix 4 Qualitative themes

Characteristics of participating offender managers

Probation areas represented	
Polygraph	Comparison
Staffordshire West Midlands	Merseyside
Derbyshire	Cheshire
Lincolnshire	North Yorkshire
Nottinghamshire	West Yorkshire
Northamptonshire	Cumbria
Leicestershire	South Yorkshire
Warwickshire	Humberside

Characteristics of participating offenders

	Polygraph offenders	Comparison offenders
Age range (years)	22-65	20-66
Female	0	1
Male	15	9
Release date range	June 2009 – Dec 2010	May 2010 – March 2011
White British	14	10
Asian other	1	0

Characteristics of participating offenders

Types of offences committed		
Offence type	Polygraph offenders	Comparison offenders
Contact offence against a child	15	9
Rape of an adult	3	0
Internet offence against a child – images	6	4
Internet offence against a child – grooming	1	0
Sexual assault of an adult	0	1
Incest	1	0
Non-contact offence against a child	0	1

Appendix 5

Interview schedules used for the qualitative research

Polygraph group

Questions for individual interviews with offenders

1. How long have you been supervised for in the polygraph pilot, and how many tests have you experienced?
2. Please describe these polygraph experiences briefly.
Prompts – What outcome did each test have (i.e. deception indicated, no deception indicated, inconclusive)? How did you feel about the outcome? Did you try to beat the test? How? Did you challenge the outcome? How?
3. If you mentioned information that was previously unknown (i.e. a disclosure) on the day of the polygraph test, what was your reason for doing so?
4. How likely do you think it is you would have mentioned these things without the polygraph?
5. Did you say anything that was untrue about your compliance to licence conditions? Why?
Prompts – Did you say anything untrue to explain a failed test or unclear result?
6. What did you expect from the polygraph test?
Prompts – Did your offender manager talk with you about it? Did you receive any information about the polygraph? Did you ask about what to expect?
7. How did you feel that the test was handled by the polygrapher(s)?
Prompts – Did you have different experiences with different polygraphers? Did the polygrapher treat you fairly?
8. How did you feel that the test was handled by your offender manager?
Prompts – Did your offender manager attend the appointment/three-way interview with you? Did your offender manager appear knowledgeable about the procedure?
9. Have you mentioned information that was previously unknown in supervision because of a polygraph session? Please describe what happened briefly.
10. How has your behaviour changed from being in the polygraph pilot?
Prompts – Has it made you think about your behaviour/licence requirements more? Has it enabled you to discuss your behaviour/difficult topics more openly? Has it influenced the way in which you manage your behaviour?
11. In what way, if any, do you think the polygraph has been helpful in stopping your offending?
12. Can you think of anything else that would have been helpful for stopping you offending?

13. How has the polygraph influenced the way in which you talk with or respond to your offender manager?
Prompts – Is there anything about the polygraph that has increased/decreased how much you disclose?
14. How has the polygraph affected your relationship with your offender manager?
15. How has the polygraph affected your relationship with others (e.g. partner, family, friends)?
16. From your experience, which aspects of supervision under the polygraph do you think work well? Why?
17. From your experience, which aspects of supervision under the polygraph do you think do not work so well? Why?
18. If you have been supervised in the past without the polygraph, how is supervision with the polygraph different?
Prompts – Which method of supervision do you prefer? Why?
19. Overall, how would you say that you view the polygraph, given your experience(s) of it?
20. Do you think that all sex offenders should be supervised using the polygraph? Why? Why not?
21. Is there anything you would like to add regarding your supervision experiences in the polygraph pilot?

Questions for individual interviews with offender managers

1. How long have you been managing offenders in the polygraph pilot, and how many offenders have you managed in the polygraph pilot to date?
2. We would like to focus on your polygraph experiences with Mr/Ms X for a moment. Please can you describe your polygraph experiences with this offender briefly?
Prompts – How many tests has this offender had under your supervision? What outcome did each test have (i.e. deception indicated, no deception indicated, inconclusive)? How did you/the offender feel about the outcome? Did your offender try to beat the test? Did your offender challenge the outcome?
3. If Mr/Ms X made a disclosure on the day of the polygraph test, what do you think their reason for doing so was?
4. Thinking about the disclosures that Mr/Ms X made, in your opinion how likely would he/she have been to make these disclosures without the polygraph?
5. How were you briefed as to the aims of the polygraph pilot when supervising Mr/Ms X? Did the aims change over time?
6. How did you feel that the test was handled by the polygrapher(s)?
Prompts – Did you have different experiences with different polygraphers? Did the polygrapher treat the offender/yourself fairly?

7. How do you feel that you handled the polygraph appointment and outcome?
Prompts – Were you able to attend the appointment/three-way interview? Did you feel knowledgeable about the procedure and options available to you?
8. Has this case required any enforcement actions. If so, what and why?
9. Has Mr/Ms X has changed his/her behaviour in your opinion from being in the polygraph pilot? If so, in what way?
Prompts – Has it made Mr/Ms X think about their behaviour/licence requirements more? Has it enabled Mr/Ms X to discuss their behaviour/difficult topics more openly? Has it influenced the way in which Mr/Ms X manages their behaviour?
10. What additional resources/support do you think would have improved your supervision of Mr/Ms X under the polygraph?
11. How has the polygraph influenced the way in which you manage Mr/Ms X?
Prompts – Has it had a positive/negative influence?
12. In your opinion, has the polygraph affected Mr/Ms X's relationship with you or anybody else? If so, how?

Now I would like to ask you about your experiences with the polygraph more broadly, but of course you can refer to your supervision of Mr/Ms X when discussing your experiences.
13. If you have supervised offenders in the community without the use of the polygraph, how does supervision with the aid of the polygraph compare?
Prompts – Which method of supervision do you prefer? Why?
14. Are there issues that have occurred that are different/unusual in offender management due to the polygraph?
15. Given current resource constraints, if the polygraph were to be rolled out nationally, do you think its use should be targeted, and under what criteria?
16. Overall, how would you say that you view the polygraph for use with offenders released on licence?
17. Is there anything you would like to add regarding your supervision experiences in the polygraph pilot?

Comparison group

Questions for individual interviews with offenders

1. How long have you been supervised for since being released from prison?
2. Please describe your supervision experiences briefly.
Prompts – How open do you feel you can be with your offender manager? Are there some things you feel unable to discuss? Why do you think this is?
3. In a supervision session, have you ever told your offender manager information about your behaviour that affected how you were managed? Please explain.
Prompt – Entering an exclusion zone, etc.

4. Have you ever told your offender manager anything untrue about your compliance to licence conditions? Why?
5. Has your behaviour changed from being supervised? If so, in what way?
Prompts – Has it made you think about your behaviour/licence requirements more? Has it enabled you to discuss your behaviour/difficult topics more openly? Has it influenced the way in which you manage your behaviour?
6. In what way, if any, do you think your supervision has been helpful in stopping your offending?
7. Can you think of anything else that would have been helpful for stopping you offending?
8. How has supervision influenced the way in which you talk with or respond to your offender manager?
Prompts – Is there anything that your offender manager has done which has increased/decreased how much you disclose to them?
9. How has supervision affected your relationship with your offender manager?
10. How has supervision affected your relationship with others (e.g. partner, family, friends)?
11. From your experience, which aspects of supervision do you think worked well? Why?
12. From your experience, which aspects of supervision do you think do not work so well? Why?
13. Overall, how would you say that you view supervision given your experience(s) of it?
14. Have you heard about polygraph supervision? Is this something that you feel would have helped you? Why/why not?
15. Do you think that all sex offenders should be supervised using the polygraph? Why/why not?
16. Is there anything you would like to add regarding your supervision experiences?

Questions for individual interviews with offender managers

1. How long have you been managing offenders?
2. We would like to focus on your supervision experiences with Mr/Ms X for a moment. Please can you describe your supervision experiences with this offender briefly?
Prompts – How many times roughly have you met this offender? What outcome did each supervision have (i.e. Do you believe they were open and honest with you? Is the offender challenging to supervise?
3. Has your supervision of Mr/Ms X changed over time? In what ways?
4. What enforcement actions have you taken, other than recall?

5. How do you feel that Mr/Ms X has changed their behaviour from being supervised?
In what way?
Prompts – Has it made Mr/Ms X think about their behaviour/licence requirements more? Has it enabled Mr/Ms X to discuss their behaviour/difficult topics more openly? Has it influenced the way in which Mr/Ms X manages their behaviour?
6. What additional resources/support do you think would have improved your supervision of Mr/Ms X?
7. Which aspects of supervision do you think have worked well when supervising Mr/Ms X? Why?
8. Which aspects of supervision do you think have not worked so well with Mr/Ms X? Why?
9. Would you expect that using the polygraph would help you to supervise Mr/Ms X more effectively? Why?

Now I would like to ask you about your experiences with the polygraph more broadly, but of course you can refer to your supervision of Mr/Ms X when discussing your experiences.
10. What additional resources/support do you think would improve your supervision?
11. If you have supervised offenders in the community with the use of the polygraph (for example under the voluntary polygraph pilot), how does supervision without the polygraph compare?
Prompts – Which method of supervision do you prefer? Why?
12. Overall, how would you say that you view the polygraph for use with offenders released under licence?
Prompt – Positive/negative?
13. Is there anything you would like to add regarding your supervision experience?

Appendix 6

Qualitative themes and associated comments

Polygraph offenders' views on supervision under the polygraph

Views on polygraph	No of comments	Effect on supervision	No of comments	Effect on behaviour	No of comments	Polygraph use	No of comments
Don't trust it – it's not accurate	23	Does not improve relationship with OM	4	Made me think more about my licence conditions	11	Should be used with all offenders	11
Indicates lack of faith in OMs	1	Does not evoke more discussion with OM	9	Did not make me think more about my licence conditions	4	Should not be used with anyone	1
Political tool	1	Opens up discussion with OM	5	Made me stick more to my licence conditions	7	Good for use with sexual offenders as they are devious and the polygraph catches them out	5
Waste of money	6	Made me more honest with OM	6	Helps me to manage my behaviour	1		
Deterrent	1			Deterred me from some behaviours	1		
Adds clarity to licence conditions	2			Did not disclose anything	7		
Professionally conducted	11			Disclosed during polygraph session – would not have done so without being polygraphed	7		
Degrading	1			Improves relations with others	2		
Not fair: machine says I lied	6			Gives me confidence			

Comparison offenders' views on supervision and the polygraph

Views on polygraph	No of comments	Supervision influence	No of comments	Views on the polygraph	No of comments
Focuses on my needs, e.g. training	2	Behaviour not changed	4	Make no difference to me – 100% honest anyway	5
Made me think more about offence	1	Behaviour has changed	2	Not keen – not 100% accurate	1
OM gives support for finding job etc.	3	Adhere to licence conditions	1	Would have helped show I was telling the truth	2
Can talk to OM about anything	9	Think more about licence conditions	1	Would make me less open	1
I am completely honest during supervision	6	Not changed how I manage my behaviour	2	Good for use with sexual offenders – devious group	6
Supervision is too frequent	2	Made a disclosure	0		
OM is like a friend	2	Not influenced my behaviour with others	4		
OM trusts me completely	1	Made me more honest with others	3		
Pointless	1				
Can't open up to OM	1				
Made me think about consequences of my behaviour	1				
Made me think about licence conditions	1				
Didn't commit offence	1				

Polygraph offender managers' views on supervising offenders under the polygraph

Supervision content	No of comments	Influence of supervision on offender's behaviour	No of comments	Views on polygraph for supervising offenders	No of comments	Resources needed	No of OMs
Fully briefed	11	Made me more challenging	15	Disclosed during supervision as polygraph coming up	4	Recall	1
Professionally conducted	11	Helped focus supervision on licence conditions	6	Disclosed during polygraph session	8	Official warnings	6
Prefer to normal supervision	12	Gave me confidence	6	Don't believe would have disclosed if not taking polygraph	12	Information passed to public protection agents	1
It should be used with sexual offenders	7	Reassured me offender was truthful	3	Gave offender more confidence	1	Additional resources needed	0
Use with sexual and domestic violent offenders	11	Offender more open due to polygraph	3	No influence on offender's behaviour	2		
Use with all offenders	3	Made me realise things were going on I didn't know about	5	Increased offender's awareness of importance of adhering to licence conditions	8		
Useful as tool to manage offenders	12						

Comparison offender managers' views of supervising offenders

Supervision content	No of comments	Influence of supervision on offender's behaviour	No of comments	Views on polygraph for supervising offenders	No of comments	Resources needed	No of OMs
Focus mainly on personal needs (not offence-related)	5	Thinks more about licence conditions	6	Useful for use with sexual offenders	7	More programme availability	3
Not challenging enough	7	Thinks more about behaviour	4	Sounds useful but may disrupt trust	5	More time to spend with offenders	1
Supervision is challenging	1	Complies with all supervision requests	4	Would provide supportive evidence	6	More help with accommodation for offenders	1
Has improved across time	4	Does not comply with supervision requests	1	Professionals better judges of when offender not truthful	2	More training for offenders	1
Not improved across time	3	Disclosed during supervision	1			More home visits	1
Offender is open/honest during supervision – trust them	11	Received official warning	3			None	1
Offender not open	3	Offender's risk reduced	2			More mentors for offenders	1
Doubt offender's honesty	3					More focused work for female offenders	1

Ministry of Justice Research Series 14/12

The evaluation of the mandatory polygraph pilot

This report presents findings of research commissioned to examine the impact of mandatory polygraph testing for adult sexual offenders. The research sample of offenders were released on probation licence, having served a prison sentence of 12 months or more for a sexual offence. The evaluation compared polygraph sample offenders with a matched control group, and combined quantitative and qualitative methods alongside a preliminary cost-effectiveness analysis. The findings from the research indicated that mandatory polygraph testing can be an effective tool in the management of adult sexual offenders and may help to elicit more clinically significant disclosures.

ISBN 978-1-84099-555-8

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