



College of
Policing

The Essex Body Worn Video Trial

The impact of Body Worn Video on criminal justice outcomes of domestic abuse incidents

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Executive summary

Key findings

The randomised controlled trial (RCT) showed that issuing officers with body worn video (BWV) could be effective at increasing the proportion of detections that resulted in a criminal charge¹. This finding was consistent across all incidents regardless of initial assessment of risk by the control room. There were no differences in incidents being recorded as crimes, or rates of arrest, and too few cases to identify impact on guilty pleas and sentencing at this time. Officers with BWV frequently mentioned the evidence gathering benefits of the cameras – particularly for capturing context, comments and emotion accurately. They also reported feeling confident that incidents they attended would result in convictions. However, most officers surveyed stated that they did not switch the camera on for every domestic abuse incident and there were practical issues that limited the possible benefits of the camera.

Background

Some early evaluation work undertaken in England and Wales has shown promising evidence that body worn video (BWV) can increase the proportion of criminal justice (CJ) outcomes in domestic abuse (DA) incidents, but the findings were limited. The randomised controlled trial (RCT) reported in this paper tested the impact of BWV on the CJ outcomes for domestic abuse incidents in Essex. The intervention was the issuing of BWV to officers who provided first response to incidents of DA. In total, 80 officers were randomly assigned to the treatment group (to wear body worn video cameras) – 70 eventually wore the cameras – and 238 were randomly assigned to the control group (to not receive the cameras). Randomly assigning officers to the intervention group provides a strong basis on which to draw inferences regarding the effects of BWV.

Over the four month period of the trial, 308 Essex response officers attended 30,480 incidents, of which 7,609 were domestic abuse incidents; 25% of all incidents attended. Of these, at least one officer wearing a body worn camera attended 2,761 incidents (36% of all domestic abuse incidents attended). The CJ outcomes of the DA incidents attended by treatment and control group officers were analysed – both at the incident and officer level, to see if there were any difference from the presence of a camera in the outcome of the incidents. In addition, an officer survey and officer interviews were conducted to understand why any changes in outcome may have occurred and context. It was not possible to obtain victims' views, or data about the involvement of the victims or witnesses at any stage in the investigation or prosecution. The trial did not look at potential impact of BWV on victim's feelings of fairness and confidence in the way the police handled the incident, or their views on progression of the incident through the Criminal Justice System using BWV footage.

Results

There was no significant difference between whether a camera was present or not in the rate at which incidents resulted in a sanction detection (SD). However, there was evidence to suggest that use of the camera affected the type of SD. A significantly higher proportion of incidents attended by at least one officer wearing a camera resulted in one or more criminal charges rather than another SD outcome (81% of the sanction detections were charges in the treatment group compared to 72% in the control group). This finding was supported by a 5%

¹ Compared to a penalty, community resolution or caution

difference in the mean for individual officer charging rates in the two groups (75% vs 80%), which although not statistically significant² matches the pattern of findings from incidents.

There was no evidence to suggest the cameras work differently for different types of officer, victim or area. However, the presence of the camera increases the probability of an individual being charged (as opposed to other forms of detection), at all risk levels graded by the control room, but the effect was most noticeable for the lower risk cases.

There were no differences in incidents being recorded as crimes, or rates of arrest, and too few cases to identify impact on guilty pleas and sentencing at this time.

The intention of the trial was to test the impact of BWV on CJ outcomes for DA incidents, but low usage of the cameras by officers may have had a large effect on the CJ outcomes explored in this trial. During the trial, only one in six officers surveyed reported using the camera for all DA incidents, as required by policy, and there were significant practical limitations with the equipment. This trial shows an impact of BWV in its complex 'real world' setting that enables an understanding of when and for whom it is effective. This study was, therefore, an effectiveness study, not a study of how BWV could work in ideal settings – which would need translating to the context to which it is applied. This distinction is important because interventions that lead to significant improvements in 'ideal' settings do not necessarily deliver the same results in the 'real world'. This trial found that BWV was not used as it was intended, but a difference was still seen. One explanation for the charging results could be the effect of expectations of being part of a trial, but the officer interviews and survey gave an insight into the reported difference the cameras made to their response to DA incidents.

Officer Experience

Half of those officers interviewed stated an increased confidence in getting convictions with the cameras, as they felt the cameras gave more detail than a statement could capture. The evidence, interviewed officers reported, was especially useful if it was a recording of the initial account, as it would often capture emotion and any injuries – more accurately reflecting the impact of the incident. An added benefit of the cameras was that often victims reportedly gave a great deal of information about the incident, or appeared when the officers arrived at the scene with visible injuries or clearly emotional, that they felt provided useful evidence at a later stage, particularly for evidence led prosecutions. The interviewed officers' comments all support the increased proportion of charges found.

Officers interviewed felt the cameras increased accountability and made them more mindful of their behaviour. While some comments suggested officers' would be more likely to arrest than to take any other action with BWV, this was not found in the results, perhaps because of the force's prior focus on positive action, which officers usually took to mean arrest. They explained a risk aversion to inaction, and how this was amplified by the cameras. There was a feeling they would have to justify action or rather inaction to anyone looking at the footage.

However, the strongest message from the survey and interviews was that the cameras had practical limitations, including failure to record, recording at the wrong angle, difficulties switching it on/off and not working in poor lighting, as well as being bulky so difficult to wear were often given as a reason officers stopped using the equipment.

² p<0.11, n=303

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1. Introduction

The College of Policing has been working in collaboration with Essex Police to test the impact of Body Worn Video (BWV) cameras on criminal justice outcomes of Domestic Abuse (DA) incidents. The BWV were implemented as a randomised controlled trial which allows strong statements to be made about the impact of the cameras because it can establish 'cause and effect' relationships. This practitioner report provides an overview of the trial, summarises its main findings, and discusses implications for policing policy and practice.

Background

Following four domestic murders that took place between 2008 and 2011, Essex Police have been implementing a range of measures to improve its response to victims of domestic abuse. One of these measures was the introduction of BWV cameras for use by response officers. The rationale for using BWV cameras was to improve the volume of incidents that progressed through the Criminal Justice System (CJS) to conviction.

Previous research has suggested that attrition of DA incidents out of the CJS process is a particular issue, with only 7% of incidents resulting in a charge in one force³. Attrition can happen at every stage of the CJS process (see Figure 1) and can be influenced by the victim, police practice or the courts/CPS. The basic premise of introducing BWV was that the presence of a camera and its footage would improve outcomes because the quantity and quality of evidence would increase, supporting victims and witnesses. In particular, BWV was felt to have the potential for increasing CJ outcomes for DA through two mechanisms:

- **Quantity and quality of evidence:** officers would be able to collect better additional contextual information at the scene using a camera rather than a written statement. This information could include injuries, demeanour of the defendant and comments made by the victim (especially in coercive and controlling relationships). The use of BWV for evidence capture was also thought to have the potential to increase early guilty pleas (as offenders can see sooner the weight of evidence) and evidence led prosecutions⁴ (as the camera operates as an additional witness, for example, recording previous comments of a later reluctant witnesses); and
- **Supporting victims and witnesses:** there may be more willingness for witnesses and victims to stay in the CJ process knowing that there are other sources of evidence supporting their perspective, giving them confidence to continue.

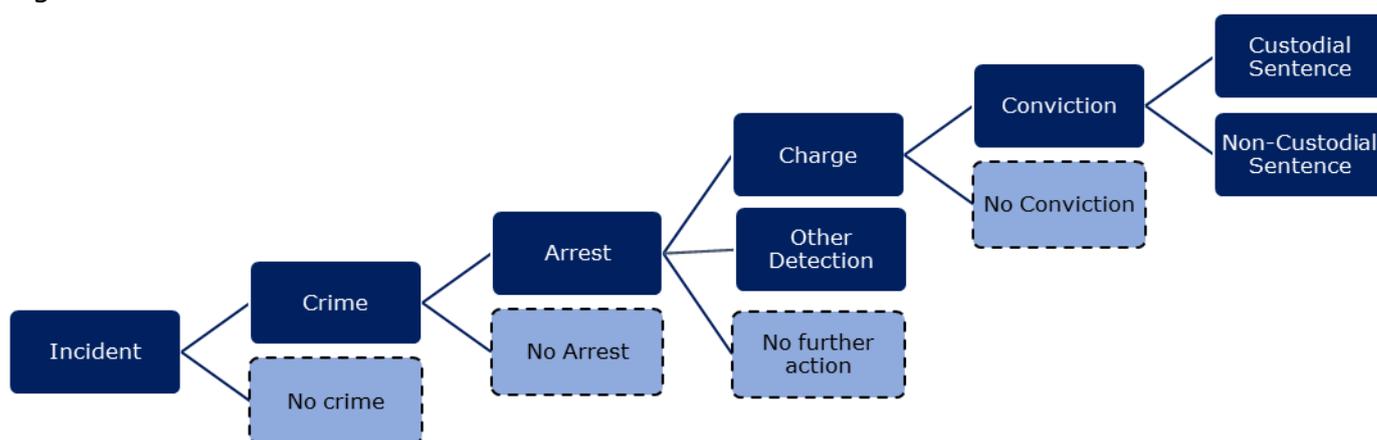
In addition, officers' behaviour may have the potential to change through several mechanisms related to their awareness that their behaviour is being recorded:

- **Increased accountability:** the recording of officer interactions at domestic abuse incidents may increase the likelihood of them following force procedure/stricter adherence to force policies as footage can be viewed after the incident. This potential change in behaviour might mean that more evidence, or better evidence is collected, and fewer cases are dropped because procedure was not adhered to; and
- **Increased confidence and efficacy:** camera recording of evidence at the scene may increase officers' confidence in securing a successful outcome. This increased confidence may be apparent to suspects, victims and witnesses which in turn could affect their behaviour.

³ Hester (2005)

⁴ Where the Victim's involvement may not be required at court

Figure 1: The Criminal Justice Process



The use of BWV to increase the volume of cases progressing through the CJS has some support from previous research, although this is limited due to the design of the evaluation. A 2006 Home Office pilot in one Basic Command Unit in Devon and Cornwall evaluated the use of BWV on improving the CJ outcomes in violence related incidents, including cases of domestic violence⁵. The pilot involved training 300 police officers and Police Community Support Officers (PCSOs) to use 50 head cameras, which were available from a pool to any trained officer on any shift. The use of the cameras was dependent on the officer choosing to wear the camera and so the results could be affected by a bias.

There were 198 domestic violence crimes in the pilot location during 2006/07. For crimes where BWV was not identified as used, just under a third resulted in a sanction detection (50 out of 136 crimes), where BWV was used, 45% resulted in a sanction detection (19 out of 42 crimes). The results were not significant as they were based on small numbers. In addition, it was unclear whether BWV was used or not, which makes direct comparison between the two groups of crimes difficult. There were additional findings from the research relating to criminal justice outcomes for violence more generally, including an increase in⁶:

- criming of violent incidents (71.8% to 81.7%);
- Penalty Notices for Disorder (and administration detections) (2.4% to 3.9%);
- charge/summons (10.2% to 15%); and
- sanction detections (29% to 36.8%).

Since the Home Office trial, BWV has been used exploratory both locally and nationally for a variety of purposes, including complaints reduction, to gather footage for training material, CJ outcomes and DA responses. Not all of these pilots have been evaluated or the evaluations have been limited by the design or size of the sample. Therefore, this research will address an evidence gap on the impact of BWV on CJ outcomes for DA cases.

⁵ Home Office (2007)

⁶ Page 47, Home Office (2007)

The randomised controlled trial

An opportunity to test the impact of the cameras

Essex Police initially planned to roll out BWV cameras to all frontline response officers at the same time. Researchers from the College of Policing identified that adapting these initial plans to a phased roll-out would create a low cost opportunity to test the impact of giving BWV cameras to officers in a short pilot, prior to wider implementation to generate significant learning for the service. The College and Essex Police agreed that a pilot of BWV would be run as an RCT, so that causal statements could be made about the impact. Since Essex police already planned to roll-out some cameras force-wide, jointly with Kent police, the development and testing of a pilot was relatively low-cost and reduced the risk that any investment in testing the impact and use of the cameras would be wasted.

The focus of the intervention

The intervention was the presence of an officer wearing a camera in attendance at incidents. The BWV allocation was decided by the force, together with the College, to be solely to response officers at constable rank. It is this group of officers who have sufficient frequency of initial attendance at domestic abuse incidents. BWV cameras were not given to police officers in other roles, PCSOs and other members of staff as they had a wide range of different contact experiences with members of the public (as well as performing different duties and having different powers). Therefore, inclusion of other officers would risk diluting the effect of the detectable impact of BWV.

The intervention required the distribution of BWV cameras that were to be attached to the outer vest of the officers, at shoulder/chest height. The cameras had a playback screen and a moveable camera lens for the officers to control what was being recorded. Each camera had a memory card, which the officers would remove after each shift, and burn relevant footage onto a disc that would then be linked to a case/crime and passed on to investigators. Eligible officers were randomly selected to receive a camera and were then trained by the force. All response officers assigned to wear a camera were required to wear the BWV whilst on duty and switch it on for DA incidents as soon as practicable; other use was discretionary. Essex police were responsible for providing the cameras, and for preparing the policy and training material. The training given to officers covered the:

- aims of the pilot;
- process for operational use, such as when to switch the camera on and off and the notification to give to the public when using the cameras;
- statement taking process and disclosure considerations;
- practical use of the cameras themselves; and
- uploading, retention, storage issues and the back office process for providing footage to CPS.

The study design

Randomly assigning officers to the intervention was chosen to provide a strong basis on which to draw inferences regarding the effects of BWV.

Trial participants were randomly selected from a database of all serving active⁷ response constables in Essex (n=308). They were then randomly assigned to either:

- the treatment group – to receive a body worn camera; or
- the control group – to not receive a body worn camera.⁸

The following CONSORT diagram⁹ in figure 2 explains the inclusion, allocation, follow-up and analysis stages.

It was not possible to randomly allocate the incidents themselves, as there was no capacity to inform officers which incident to switch the camera on for or not (as domestic incidents may not be identified as DA by the control room). In addition, there would have been potentially a dilution of the impact on officer behaviour as they would not be using the BWV all the time. Finally, the numbers of incidents that would be in scope would be considerably reduced if only 80 officers could take part in the randomisation process at any one time, effectively halving the BWV incidents. Therefore, officers were chosen as the unit of allocation rather than the incidents themselves, although the incidents remained the unit at which the impact was analysed. Further analysis was conducted at the officer level, to ensure the impact of any officer effects were captured and the results found at the incident level still held.

Officers in Essex are usually single crewed, which means that they will, for normal duties, attend incidents on their own. Therefore, to get a distribution, which reduced the likelihood of officers wearing cameras having contact with each other, and to reflect the range of shifts and locations that officers in Essex work in, the sample was stratified or grouped by shift and location. The process involved assigning each officer a random number and re-ordering the list of officers from smallest random number to largest, to remove any bias in the order. Officers were then grouped by location and shift. The new list was then used to select every Nth officer, with a random number dictating the first officer to be selected. To give the largest control group possible, and to increase the likelihood of detecting any impact of the cameras, the control group was created from all the remaining officers who were not allocated to wear a camera.

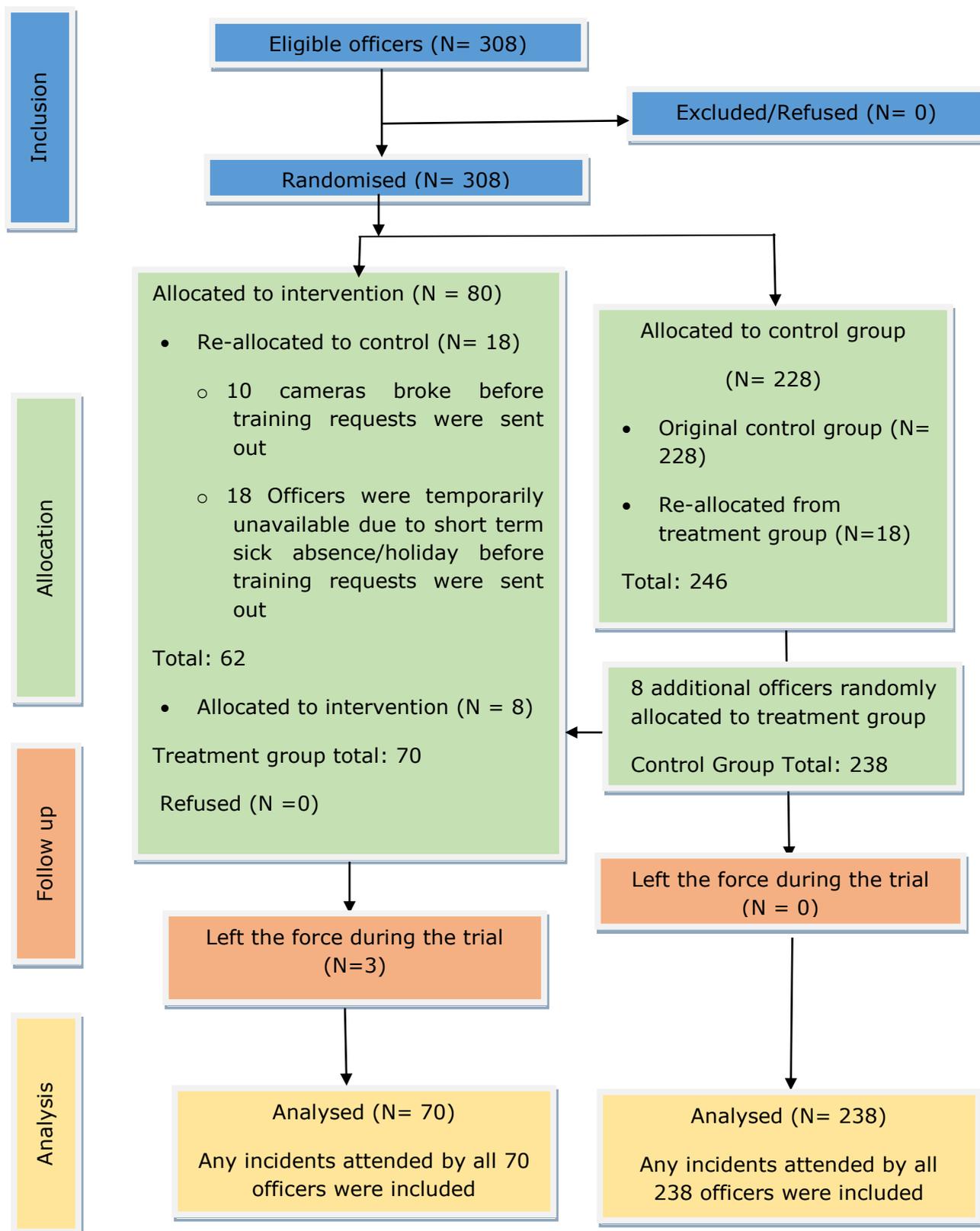
It was important for each officer to have an equal chance of selection and that the selection enabled all the available cameras to be used from the start of the trial. All of the camera users had to start wearing the cameras at the same time, both for data identification purposes and to increase the number of incidents in the treatment group as it maximised the data collection period.

⁷ Excluding for example, any on long term sick, maternity leave, restricted duty or suspended.

⁸ These procedures were carried out by College researchers to prevent selection bias.

⁹ Based on standard CONSORT report of RCTs, from a flow chart template located here: <http://www.consort-statement.org/consort-statement/flow-diagram>

Figure 2. The RCT CONSORT diagram



From the original 80 officers randomly assigned to wear cameras, 18 were unable to attend the BWV training and camera allocation days due to a variety of short term absences (for example being on holiday). The officers' absences were not in response to the request to attend BWV training; rather they were requests already registered on a central database. These 18 officers were moved back into the control group, as bias was unlikely and officers needed to start the trial at the same time. In addition, ten cameras had been found to be broken before the training allocation which meant that only 70 officers would be in the treatment group. An additional eight officers were allocated to the treatment group using the same randomisation process, to replace those who were temporarily unavailable during the period of camera allocation/training. The final sample included 70 officers who wore cameras; 67 remained in the sample until the end of the trial while three left the force during the evaluation period. Any DA incidents attended by the 70 officers during the trial period were analysed as treatment group incidents.

The distribution of officers selected in the sample, compared to those who eventually wore the cameras can be seen in Table 1 below. The table shows that broadly the numbers of officers in each station and shift matches the proportion in the population, as would be expected from random allocation.

Table 1: Officers assigned to the treatment condition and wore the cameras

	Officers eligible (n)	Officers assigned (n)	Officers wearing (n)
Treatment group location			
Station 1	28 (9%)	8 (9%)	4 (6%)
Station 2	38 (12%)	10 (11%)	9 (13%)
Station 3	13 (4%)	5 (6%)	5 (7%)
Station 4	32 (10%)	10 (11%)	6 (9%)
Station 5	44 (14%)	12 (14%)	10 (14%)
Station 6	26 (8%)	7 (8%)	7 (10%)
Station 7	40 (13%)	11 (13%)	11 (16%)
Station 8	51 (17%)	14 (16%)	9 (13%)
Station 9	36 (12%)	11 (13%)	9 (13%)
Total Treatment	308	88	70 ¹⁰
Treatment group shift			
A shift	61 (20%)	19 (22%)	15 (21%)
B shift	63 (20%)	14 (16%)	14 (20%)
C shift	62 (20%)	19 (22%)	17 (24%)
D shift	59 (19%)	17 (19%)	12 (17%)
E shift	63 (20%)	19 (22%)	12 (17%)
Total Treatment	308	88	70

The proportion of females in the control and treatment group were 22% and 23% respectively. The age distribution was similar too, with a slightly smaller number of under 30 year olds in the treatment group (30%) compared to the control group (36%). The random assignment of officers appeared to have been successful as comparisons of key demographic information show the treatment and control groups to be broadly equivalent before the

¹⁰ 18 officers were unable to be allocated to the treatment group as they were unavailable due to short term absences at the time of training/allocation. Ten cameras broke before being issued.

intervention, which allows more confidence that comparison between the two groups would be fair.¹¹

The focus of the trial was on the outcomes of the incidents attended, and so to ensure that there was no source of bias in allocation of incidents, officers were allocated to incidents by control room staff who were unaware of which officers were allocated cameras. In practice, there were occasions early on in the trial when this did not work. A few treatment group officers interviewed reported that early in the trial other officers would request their attendance as 'camera' officers and that there was a short phase where the control room asked for them to identify themselves as 'camera' officers so they could appropriately allocate jobs. In both these incidents treatment group officers both informed those involved of the need for a fair test (and so did not comply with the request to identify themselves and attend, but did not use the camera) and reported the behaviour to the Chief Inspector who intervened immediately and reinforced the purpose and requirements of the trial. The early allocation did not appear to effect the randomisation, making any potential bias unlikely as:

- broadly the number of incidents attended by camera wearing officers matched the number expected if allocation of incidents was random.
- there was no significant difference in the allocation of high risk incidents to officers in the control group (19%) and treatment group (21%).

The information on incidents is taken from data collected on the incidents attended by 308 Essex response officers from the 17th of January until the 16th of May 2014. There were 30,480 incidents attended, of which 7,609 were domestic abuse incidents¹²; 25% of all the incidents attended. Of the domestic abuse incidents, 5,573 were attended by more than one officer and 2,761 were attended by at least one officer wearing a body worn camera (36% of all domestic abuse incidents attended).

Limitations

The intention of the trial was to test the impact of BWV, but low usage of the cameras by officers may have had a large effect on the CJ outcomes explored in this trial (see the next chapter). It was impossible to record which officers allocated to treatment groups attended incidents without using cameras, because their equipment was broken or they chose not to wear them. There was no record of whether these officers actually used the camera to film the incident, or any footage was subsequently used at any stage in the criminal justice process. It is therefore impossible to tell to what extent the intervention was actually delivered. This trial shows an impact of BWV in its complex 'real world' setting that enables an understanding of in what circumstances it is effective. This study was, therefore, an effectiveness study, not a study of how BWV could work in ideal settings – which would need translating to the context it is applied to. This is important because interventions that lead to significant improvements in 'ideal' settings do not necessarily deliver the same results in the 'real world'. Therefore results of this trial are a more accurate picture of the potential impact of implementation of BWV in other forces.

It is possible that an explanation of the effects seen are an artefact of the officers knowing they are taking part in an experiment, the force is interested in improving CJ outcomes for DA and that their incidents will be monitored. There may also have been an expectation that they and others may have held, that they will perform better if they wear cameras and this expectation drove performance improvement. The expectation linked to wearing a camera

¹¹ Shadish et al 2002.

¹² As defined by this research, either the initial call was classed as a domestic incidence, the call was closed as a domestic incident, a domestic abuse risk assessment was completed, the incident was logged in the force PROtect system (for domestic incidents) or the relationship between the victim and suspect was intimate partner (ex) or close relative.

would be difficult to overcome, as there was no placebo for BWV. However, officer interviews do suggest that the cameras were affecting outcomes because of the footage itself.

Officers in the two groups attended incidents together almost three quarters of the time (5,573 out of 7,609 incidents). If the presence of a camera has a sustained effect on the behaviour of officers, it is possible that the outcomes of the control group could be inflated by officers' previous presence at incidents with BWV wearing officers. For example control officers may have been more aware of their own behaviour when attending with camera wearing officers and then retained this behaviour change when they are no longer in the presence of a camera.

In addition, as the unit of analysis was the incident, any incidents attended by camera wearing officers were considered as part of the treatment group even if the officers only attended for a brief period. It was not possible to measure the BWV officer's role at the incident, length of stay or other indicator of involvement.

Control group incidents were identified using the collar numbers of the control group officers and the absence of a treatment group officer collar number. Again, there was no measure of role, length of stay or involvement. It is possible for officers in other roles, returning from long term absence or joining Essex as a response officer were present.

It is important to note, that victim perspectives are not included in this report. It was also not possible to track the number, or change in the number, of evidence led prosecutions to explore whether any difference in attrition from the victim perspective occurred. It is unknown what impact, if any, BWV had on feelings of fairness and confidence in the way the police handled the incident, as well as their views on progression of the incident through the Criminal Justice System using BWV footage

Outcome measures and analysis

A number of principal outcome measures have been used in the evaluation. These measures are based on the following hypotheses about the presence of BWV:

- That a higher proportion of attended DA incidents will be recorded as a crime.
- That a higher proportion of DA incidents recorded as a crime will:
 - Result in an arrest
 - Result in a sanction detection¹³
 - Result in a person being charged with an offence
- That a higher proportion of people who are charged with an offence
 - Make an early guilty plea
 - Are convicted of an offence at court

All of these were initially analysed using chi-square tests, to check whether any difference in the observed and expected number of cases at each stage in the CJS were statistically significant. The results were further explored by examining the associated rates between the two groups of officers (i.e. treatment and control).

¹³ Charge, Caution, Community Resolution, or Penalty notice.

Finally, multivariate statistical models were created to assess to what extent other explanatory factors such as the demographic characteristics of the officers, the factors associated with the incident (e.g. risk level), and contextual factors (e.g. location), had an impact on charging decisions when considered alongside the effect of BWV. This final stage was intended to eliminate the possibility that any effect seen with the initial analysis was actually due to another factor aside from the BWV.

Overall, the findings at the incident level are reported, then whether the officer level analysis confirms this finding, followed by any contextual factors that may interact with the results.

The data for this analysis came from a merging of data sets from Essex police that held incident and officer details, DA contextual information, and crime records. In addition for incidents occurring in the first two months Essex police staff manually updated the outcome at court into the merged data file¹⁴.

To support the data analysis for more understanding of how and why, accompanying interviews with, and surveys of, officers to understand their experience of using the cameras were conducted.

Officer attitudes

All officers in the treatment and control groups were asked to complete an online survey at the end of the four months camera testing period¹⁵. The survey was intended to give some understanding of the impact on officer attitudes and self-reported behaviour. Respondents were asked the extent to which they agreed or disagreed with a series of attitudinal statements about attendance at domestic incidents, the phases of the criminal justice system and their decision making. Practical focussed questions asked about the camera to the treatment or control group only have been included¹⁶.

Officer Interviews

15 officers from the treatment group were also randomly selected, ensuring a mixture of genders, ages and locations, to take part in semi-structured face to face interviews. The interviews covered how the cameras may have been used at incidents and explain how BWV, may have affected their behaviour, such as the quantity and quality of the evidence they were gathering, confidence and accountability. The interviews also covered some of the complex issues around discretion, reflecting back interim results to officer to get a better understanding of them, use of the camera, as well as implementation issues and training. Those interviewed were asked about their training, the impact of cameras on criminal justice outcomes, their use, and general attitudes to the cameras. The interviews were recorded, transcribed, then analysed using a thematic approach (with a dual coding to ensure consistency in coding).

¹⁴ Additional data was sought from PNC, but there were too few matches in PNC with Essex data for this source to be used.

¹⁵ The survey questions were asked in a random order to each respondent, to prevent order bias. 44 treatment group officers and 47 control group officers filled in the survey.

¹⁶ Response rates were so low, that any comparative findings from the attitude questions from the survey are not included in this report, as a broad view on impact was not possible.

2. Results

The trial showed that issuing officers with body worn video (BWV) could be effective at increasing the proportion of detections that resulted in a criminal charge¹⁷. This finding was consistent across all incidents regardless of initial assessment of risk¹⁸. There were no differences in incidents being recorded as crimes, or rates of arrest, and too few cases to identify impact on guilty pleas and sentencing at this time. Officers with BWV frequently mentioned the evidence gathering benefits of the cameras – particularly for capturing context, comments and emotion accurately. They also reported feeling confident that incidents they attended would result in convictions. However, most officers surveyed stated that they did not switch the camera on for every domestic abuse incident and there were practical limitations that limited the benefits of the camera.

This chapter summarises the findings from the trial. It starts by examining the effect of the intervention on the principal outcome measures, and then discusses the officer survey and interviews, to contextualise the findings.

Impact on Criminal Justice Outcomes

To assess the impact of body worn video on CJ outcomes for DA incidents each stage of the CJ process was broken down and compared for a difference in outcomes between the two groups. This section covers the data analysis from incidents, evidence from 15 officer interviews and a selection of questions from the officer survey as supporting evidence¹⁹, to contextualise the results.

There were no differences in incidents being recorded as crimes, or rates of arrest²⁰, and too few cases to identify impact on guilty pleas and sentencing at this time.

There is no difference in the proportion of crimes that are detected, but the proportion of sanction detections (SD) resulting in a criminal charge does differ²¹. This finding was consistent across all incidents regardless of initial assessment of risk by the control room.

A significantly higher proportion of incidents attended by at least one officer wearing BWV resulted in a criminal charge rather than another SD outcome (81% of the sanction detections were charges in the treatment group compared to 72% in the control group). This 9% difference is a statistically significant difference and suggests that cameras influence the proportion of charges.

This finding was confirmed when comparing the mean officer charging rates for the two groups, as there was difference in charging rate of 5% (80% vs 75%) which although not statistically significant supports the finding²².

Other factors related to the incident were examined to rule out an alternative explanation for the finding, and to correctly estimate the affect that BWV was having when combined with other explanatory factors, such as any particular geographic areas, demographics of officer, or risk factors which may influence the impact of BWV. There were no features of the officer or the incident which significantly affected the impact of the cameras.

¹⁷ Compared to a penalty, community resolution or caution

¹⁸ By the control room

¹⁹ The survey questions were asked in a random order to each respondent, to prevent order bias. 44 treatment group officers and 47 control group officers filled in the survey.

²⁰ Essex police have a positive arrest policy for DA, and so differences were unlikely to be seen

²¹ Compared to a penalty, community resolution or caution

²² $p < 0.11$, $n = 303$

However, the pre-arrival risk assessment of the control room was found to be a significant explanatory factor in crimes being charged. This finding is not surprising, however, in addition to this explanatory factor, the BWV also explained some of the variation in outcomes. A standard statistical method²³ was used to assess how these two factors combined to affect the probability of an offender being charged. In other words to assess how the seriousness of the incident affected the charging rate, given the presence or absence of BWV. The results from this predictive model are shown below in table 2. The risk assessment has three levels (standard, medium, high), when compared in the two trial conditions, a difference in charging rate associated with the cameras can be seen.

Table 2. Probability of charging for various levels of initial risk, and presence of BWV

Risk Assessment	Proportion of Detected Cases Charged		
	Treatment	Control	Difference
Standard	57%	45%	12%
Medium	80%	72%	9%
High	99%	98%	1%

Overall, this shows that accounting for any effect due to the seriousness, the cameras still have an impact on charging rates, comparing to other disposals. The data suggest that the presence of the camera increases the probability of an individual being charged (as opposed to other forms of disposal), at all risk levels, but the effect is most noticeable for the lower risk cases. This is partially due to the lower risk categories having more scope for the effect of the BWV to be seen.

These findings also control, or account for the possibility that the allocation of officer to incidents was not fair – and that cameras wearing officers may have gone to more serious incidents. In addition it accounts for the possibility that more serious incidents tend to have more officers in attendance, increasing the likelihood of one of them wearing camera and the incident falling into the treatment conditions.

This finding was supported when we controlled for the effect that individual officer charging behaviour may have had on the results²⁴. However, the effect does not appear when exploring incidents attended by only one officer²⁵, although this could be due to the significant reduction in sample size, or a difference in the type of incidents attended by only one officer that changes the effect.

In summary, the trial showed that issuing officers with body worn video, could be effective at increasing the proportion of detections that were criminal charges²⁶. This result was found for offences graded at all levels of risk by the control room. This would have the effect of reducing attrition of DA cases through the CJS, because increasing the proportion of charges increases the proportion of incidents that will go on to court.

²³ Binary Logistic Regression, using the generalised linear model (glm) function in R v3.1.1

²⁴ Using a multi-level binary logistic model created in the R package "lme4", b=0.33, p = 0.057 (n=1746)

²⁵ b=0.15, p = 0.8 (n=332)

²⁶ Compared to a penalty, community resolution or caution

Understanding the pattern of results

Despite the practical challenges (discussed further in the next section) officers interviewed felt the cameras helped them capture situations and demeanour accurately, collect evidence useful for the CJ process and they often made the best use of the equipment to capitalise on this.

The findings from the officer interviews²⁷ are presented under the headings of the mechanisms BWV was thought to work through: Quantity and Quality of Evidence; Supporting Victims and Witnesses; Accountability; and Confidence and Efficacy. All of these mechanisms may have worked to explain the difference seen in the proportion of detections that were charges.

One positive finding that does not fit in these categories were a few officers reported that they had watched their footage and reflected on it. The officers commented that this had changed the way they approached incidents, mostly by getting them to think again about how they had approached a situation. One officer had also received positive feedback from a Chief Inspector who had reviewed footage – although feedback from Sergeants or investigators had not been experienced. The officer survey found that almost one in four had changed the way they approached situations after viewing footage of themselves (9 of 37).

Quantity and quality of evidence

Comments relating to this mechanism were mostly about good evidence capture of both damage and the demeanour of key suspects or victims. Officers interviewed felt that evidence was especially useful if it was a recording of the initial account, as it would often capture emotion and any injuries - more accurately reflecting the impact of the incident. A strong theme from the majority of interviews was the utility of the cameras to support written statements predominantly from victims, as it reportedly captured or enhanced the description of the situation or demeanour of the victim that would have previously taken a lot of descriptive detail to convey. In addition respondents felt it was helpful in jogging their memory of the event, reminding them of details they may not have been able to previously recall.

“... It’s a good tool to have because it’s captured something that otherwise you would have to write a lot in a statement about. Especially, even just, simple things like, you know, the layout of the house, or, you know, sort of, first accounts from people it’s good for. And you can record footage of damage that’s occurred. It’s... it is a useful bit of kit.”

Officers interviewed felt that the cameras was particularly useful as it captured the information immediately provided by victims when officers arrived and captured injuries and emotion. The ability to capture visible injuries or emotion was often associated with the points below, about enabling action by the police and courts when the victim may later change their mind about reporting a crime.

A few officers reported making best use of the camera to capture better evidence. An example of making the most of the camera was the officer scanning the room deliberately. Some officers reported taking the camera off to get better footage of the victim, or one

²⁷ All themes and issues raised have been taken from double coded transcriptions of the interviews

officer even described standing back to capture an incident as colleagues approached – although would still help if an incident required intervention. Officers frequently spoke about ensuring they had footage of injury or damage in particular, and usually ensuring as the camera wearing officer they spoke to the person who would give best evidence of the incident, usually the victim. Cameras may have influence the charging decisions in particular, as it is at this point the camera evidence is usually shared with other agencies.

Supporting victims and witnesses

There were no direct comments about the support to victims and witnesses BWV would offer during the CJ process as most response officers interviewed stated that they did not have an awareness of this after they handed the incident on to be investigated. However, some officers interviewed were aware of the potential impact of BWV on victims. Two officers talked about how they tried to explain to victims that what they said on camera will have to be followed up by the police. Their clear explanation was done as they had experienced incidents where the positive arrest policy had not been what the victim really wanted.

“...if this is what you're telling me, they are going to be arrested. You understand that? You know, they'd look at it [the footage] and be like, well, you were trying to get him out of that... you're not, you're just trying to make people understand what their actions mean.”

Pursuing prosecutions when it is not what the victim wants was mentioned by some officers as a potential longer term problem, and something they felt uncomfortable about. The concern for officers was the worry that because the decision to pursue a crime would be taken out of the victim's hands, the victims would not call again if future incidents occurred. However, many officers interviewed felt that the cameras would certainly increase the number of evidence led prosecutions, where the victim's support may not be required at court. A few officers explicitly stated an increased confidence the cameras gave them in relation to achieving better CJ outcomes, particularly convictions, which for them was a positive effect.

Accountability

Officers interviewed felt the cameras increased accountability and made them more mindful of their behaviour. While some comments suggested officers' would be more likely to arrest than to take any other action with BWV, this was not found in the results, perhaps because of the force's prior focus on positive action, which officers usually took to mean arrest.

Often linked to accountability officers explained a risk aversion they had to inaction, especially in relation to DA and how this was amplified by the cameras. There was a feeling that they would have to justify their action, or more likely inaction to anyone looking at the footage – even if at times this contradicted what the victim wanted, or was in their view a relatively minor incident which they may have previously used their discretion to not pursue a criminal justice outcome.

“It's certainly going to make sure that you take positive action, isn't it? Because you wouldn't download it and then display it anywhere having not made the arrest.”

Officers interviewed perceived that if a domestic abuse incident attended by the police later resulted in a serious injury, the camera footage would be used by the solicitors or other colleagues to scrutinise how they dealt with previous incidents and their response could be challenged, possibly unfairly due to the benefit of hindsight.

“you always worry drastically about getting it wrong. No one wants to be that officer that attended the stabbings domestic the week before she died...There is always that pressure...Knowing that it will be up in court with the CPS.”

Some interviewees, reported an awareness that later the footage could be viewed, but felt it did not directly affect their behaviour or decisions. There was also a feeling that they may have to be more careful about the things they said – “minding their Ps and Qs” - especially when they first started to wear the cameras and they felt BWV enhanced their professionalism. A few officers also commented that the presence of a camera was a conscious reminder they were being recorded, which made them consider how others viewing the footage may interpret their actions, so being less firm to not appear aggressive out of context, or pushing a little more to get a victim to engage with the police and report a crime.

Finally, one officer felt that his camera had not changed his behaviour, but when he was filmed by a colleague it did. He was not very aware of his camera, and was not in the footage, however, when his colleague was wearing one he was conscious he was being recorded. Therefore, cameras may have affected other officers present during the trial – something important when considering the impact on the control group officers.

Confidence and efficacy

Around half of the officers’ interviewed felt that convictions were more likely, although they often did not know what the outcome was of cases they had attended. The link between cameras and convictions gave them confidence that the cameras were an effective tool.

“... if we’ve turned up to an incident that’s still ongoing and we’ve got video of that person doing something, whether that be hitting their partner, shouting at the partner, smashing the place up, then, yes, all day long that’s going to make a difference over that conviction, isn’t it? Because we’re going to have that evidence and that guilty plea is going to come, hopefully, sooner.”

However, a few officers also had experience, or had heard of cases where the BWV footage alone had not made a difference. When a victim had retracted their statement or no longer supported prosecution, the cases had ended in ‘no further action’ despite in the officer’s perspective the presence of convincing evidence a crime had occurred.

Implementation issues

The previous section covered some of the benefits of evidence capture that officers felt BWV gave. In addition, from previous research, which has seen an increase in the proportion of violent incidents recorded as crimes and an increase in SDs²⁸, it may have been assumed that the arrest, or detection rate may also increase.

The intention of the trial was to test the impact of BWV, but low usage of the cameras by officers may have had a large effect on the CJ outcomes explored in this trial. Around half of those surveyed (19 of 37) felt that overall the cameras were 'a good bit of kit', however, one limitation for the results of this trial, was that only six officers said they turned the camera on for all domestic incidents without exception. Of the 15 interviews conducted with officers, around eight of the officers wore their BWV every day, and one officer had only used the camera once before it broke, the others had either begun to wear it occasionally or entirely stopped. It is important to note, that although the officers may have been wearing a camera every day, their decision to turn it on was not daily, with most officers describing using the camera only for incidents they felt it would make a difference for, usually incidents that were crimes, or violence was involved. This means many officers were not wearing the camera at all, and those that were wearing the camera were not using it for every DA incident. This suggests that a number of the domestic incidents attended may not have been recorded, potentially reducing the impact of BWV that we can detect and why the impact of the cameras found is lower than that seen in other studies.

This is important because it shows the impact of BWV, not in an 'ideal' setting, but in a 'real world'. Therefore results of this trial are a more accurate picture of the impact of implementation of BWV in other forces. There were, however, some implementation issues, which if addressed may affect the impact of BWV.

One of the main reasons the usage of the camera was lower than anticipated by the force, and that many officers had stopped wearing it, were the practical limitations. An overriding theme from the interviews, from all the officers who had worn the camera more than once, was the practical issues with the cameras; the angle it captured the footage at, the difficulty turning it on/off, failure to record at all (blue/blank screens leaving audio only), and issues with it not working in poor lighting conditions. In addition, officers found it bulky and uncomfortable to wear or that it got knocked off their vests easily. One quote from an officer sums up the impact of the practical limitations had, especially in relation to evidence capture

"picture paints a thousand words and a video paints a million...but if your pictures is blurry then..."

This point was echoed in the officer survey which also identified some practical issues. More than two-thirds of treatment group officers (25 of 35) disagreed with the statement 'the camera is easy to switch on and use'. A similar number of officers (27 of 36) felt that the cameras did not work well at night. A large majority of officers (31 of 36) also reported that the angle of the camera meant they often 'recorded the wrong thing'.

However, two-thirds of officers surveyed (26 of 36) did feel that the software for burning footage was easy to use and almost two thirds of those surveyed felt they were given enough training to use body worn video properly (25 of 36). Further, on a positive note, just over half the officers surveyed disagreed with the statement that they 'felt uncomfortable wearing a camera' (20 of 37).

²⁸ Home Office (2007) Plymouth Head Camera Project – Body-Worn Video Recording System (Head Cameras): National Pilot, Final Report, April 2007

This suggests that the usability and ergonomics of the camera are very important for uptake. Once officers found it difficult to use, or experienced poor quality products from the cameras they simply stopped using it. A few officers interviewed felt the camera had had no real impact at all and one wanted to return it.

When officers who were not allocated a camera were asked in the officer survey their opinion on whether they would like to be issued with BWV cameras, and their responses were fairly evenly divided. While 15 officers reported that they would like to be issued with a camera, a similar number (14) responded they would not (out of 40).

Summary

Despite the practical challenges, generally officers felt the cameras gave more detail than a statement could capture, as well as good context and atmosphere for anyone to understand more clearly a situation. This provided a good source of evidence for evidence led prosecutions and for some increased their confidence that incident they attend would lead to a conviction.

The other major theme was accountability, linked to risk aversion and the opportunity to look at the footage with hindsight, which officers felt made them more likely to arrest than to take any other action with BWV. This effect was not found in the results, perhaps because of the force's prior focus on positive action, which officers usually took to mean arrest. Many officers interviewed felt that the cameras had the potential to increase the number of evidence led prosecutions, where the victim's support may not be required at court, however a couple had concerns about the potential impact on victims.

3. Conclusions and implications

Conclusions

In summary, the trial showed that issuing officers with body worn video, could be effective at increasing the proportion of detections that were criminal charges²⁹. This result was found for offences graded at all levels of risk by the control room. This would have the effect of reducing attrition of DA cases through the CJS, because increasing the proportion of charges increases the proportion of incidents that will go on to court. The officer interviews gave a good understanding of the use and their experience that explains this result.

Despite the practical challenges, generally officers felt the cameras gave more detail than a statement could capture, as well as good context and atmosphere for anyone to understand more clearly a situation. This provided a good source of evidence for evidence led prosecutions and for some increased their confidence that incident they attend would lead to a conviction.

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Overall, the trial showed that issuing officers with BWV, could be effective at increasing the charging rates of detected domestic abuse incidents. However, the findings from the officer interviews and surveys also give a good context of considerable practical challenges that the officers faced when using the cameras and a lower than expected usage rate by officers. These two factors combined may go some way to explain why the impact seen was not as large as seen in other studies and gives scope for potentially larger effects to be found if the technology was more user friendly and officer usage higher. However, there is still a question, from a victim and public perspective if CJ outcomes are the right outcome.

Further research

It is important to highlight that this research has been initiated and concluded within 9 months and so the long term impact of the cameras will not have been tested. For example, many court cases will not even have started, and any sentencing information has been very limited. Further research may be warranted to explore the long term impact of BWV on the outcome of DA cases at court, and beyond. Any future research would need to consider data sharing with CJ partners to help assess the impact and an understanding of how the case file preparation process may change with the introduction of this form of digital evidence.

This research also has been unable to capture the perceptions of victims. This is a key element in any work designed to support cases through the CJS. Future research may want to explore the views and experiences of victims that have officers attending wearing BWV, or cases that have had footage used. Furthermore, the possibility of additional benefits beyond the CJ outcomes needs to be explored. For example, any possible benefits for the control group officers, any changes in the interactions, improved procedural justice focussed interactions or public satisfaction.

²⁹ Compared to a penalty, community resolution or caution

The initial analysis of the data has been of DA incidents as a whole, but there may be differences in the types of offence where BWV works most effectively and further analysis would be beneficial. In the same vein, although beyond the scope of the current research officers were permitted to switch on the cameras for any other incidents, and so an analysis of the outcomes for the other incidents attended by the treatment and control officers may provide more evidence on the effectiveness of the cameras in other situations and incident types.

The impact of equality issues could not be ascertained from this research and further research should explore any difference in the impact of BWV on officers or members of the public with protected characteristics with a full EIA developed for any future police service wide policy decisions.

This study highlights that body worn video is a fruitful area for research and more research should be done to explore wider impacts of the technology. In the UK, further research would be valuable to investigate the impact of body worn video in other aspects of frontline policing. This study focuses on just criminal justice outcomes for only one crime category. Testing the impact of body worn video for all interpersonal violence, stop and search encounters, and complaints reduction – as well as officer and public attitudes would help fill an important gap in the evidence base. To this end the College of Policing has collaborated with the Mayor's Office for Police and Crime, and the Metropolitan Police Service to test the effect of BWV on those outcome measures.

Practical implications

Findings from this trial show that body worn video could improve criminal justice outcomes for cases of domestic abuse. This study suggests that there is value in forces exploring other applications of body worn video, to other offence types, for criminal justice outcomes. However it is important that forces consider the context of implementation; and the possible 'return on investment' before committing to this sort of intervention. Return on investment is important, and the cost of body worn video and the training – which required officers to be abstracted from ordinary duties for a day – should be weighed up against the potential benefits. Many of the benefits may also be extra costs, as an increase in the proportion of charges may mean more attendance of officers at court and more back office staff preparing case files.

The context of implementation is vitally important. Essex police's response to domestic abuse incidents, as shown in the officer interviews are viewed in the context of high profile deaths of such victims. Other forces will have a different context, response procedure and scope for improvement.

This work does highlight for forces considering implementing or evaluating BWV, two main learning points, the first that the design and usability of the cameras is key in their uptake. Second, a method of ensuring compliance to force policy may be required. Additionally, it would be useful for any process to have a way of tracking the use of the cameras – when they are switched on and used, particularly the incidents they are used for, to better track the impact.

Importantly, this study also demonstrates that it is possible for the police service to evaluate the impact of new technology on the ground. Given the current financial challenges faced by policing in the UK and around the world, it is increasingly important that new technology interventions police services invest in are tested for their efficacy.

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Appendix A: Results tables

Detected crimes which result in a suspect being charged

<i>Observed</i>			
	Charged	Not charged	Total
Camera	305	70	375
No Camera	435	170	605
<i>Total</i>	740	240	980

<i>Expected</i>			
	Charged	Not charged	Total
Camera	283	92	375
No Camera	457	148	605
<i>Total</i>	740	240	980

X² value 11.13843099

p-value 0.0008455738

Logistic Regression results

The only model that had significant explanatory factors is set out below.

Co-efficients:	Estimate	Std. Error	z value	P value
(Intercept)	-0.1921	0.1886	-1.019	0.30837
Camera_inc_Y/N[T.Yes]	0.4827	0.1869	2.582	0.00982 **
Risk_Level_Desc_Pre[T.2_Medium]	1.1180	0.2086	5.360	8.31e-08 ***
Risk_Level_Desc_Pre[T.3_High]	3.9855	0.5368	7.424	1.14e-13 ***

Significance: '***' = 0.001 '**' = 0.01 '*' = 0.05

Null deviance: 938.62 on 870 degrees of freedom

Residual deviance: 800.88 on 867 degrees of freedom
(109 observations deleted due to missing entries)

Converting the coefficients, by anti-logging, it creates the odds ratios below:

	Odds Ratio
(Intercept)	0.8
Camera_inc_YN[T.Yes]	1.6
Risk_Level_Desc_Pre[T.2_Medium]	3.1
Risk_Level_Desc_Pre[T.3_High]	53.8

The table shows that the odds of someone being charged are 54 times higher if the incident is classified as "High" risk before arrival, compared to a risk assessment that classifies the case as "Standard".