



# Body-Worn VIDEO

OPERATION  
HYPERION

Evaluation of the Introduction of  
Personal Issue Body Worn Video Cameras  
(Operation Hyperion) on the Isle of Wight:  
Final Report to Hampshire Constabulary

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ISBN: 978-1-86137-654-1

FEB  
2015

  
University of  
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Studies



First Published 2015 University of Portsmouth

ISBN: 978-1-86137-654-1

## Acknowledgements

There were so many Hampshire police officers and staff involved in this project from the start, when body worn video cameras were still relatively low profile. It is not possible to thank them all personally, but it is important to note that we always felt supported in our collaborative endeavour under the umbrella of Chief Constable Andy Marsh. An extra special mention must go to Inspector Steve Goodier who has seen the process through and has now deservedly become a force and national lead. Jenny Matthews and Clare Simkin were also so patient and helpful with our non-standard data demands, as were Di Kingston and Steve Gardener. Dave Gledhill's help with the initial scoping study was crucial and thanks are also due to Chief Inspector Gavin McMillan and Inspector Rob Abel for their help in the early stages.

We would also like to thank our colleague Bob Golding for looking at this with his old deputy chief constable's hat on, and off again as an academic. We are additionally grateful to Professor Chris Lewis for his internal review and statistician's eye and to the two anonymous academic peer reviewers whose comments were so useful and much appreciated for the final draft. Special thanks to Keith Haywood for his support and help with the domestic abuse case study and finally to Jo Fairwood for that final tidying up!



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# Executive Summary

This study evaluated the impact of issuing all police officers on the Isle of Wight with Body Worn Video (BWV) cameras on 1 July 2013. It is based mainly on a series of measures in the year prior to camera issue compared to the same measures in the year after issue. These measures included data on changes in: public opinion; occurrences and crime; criminal justice processes (domestic assault) and complaints against police. In addition, there was also survey of IoW officers' views on BWV cameras and observational fieldwork.

## Isle of Wight public opinion on police BWV cameras

- The Isle of Wight (IoW) public's trust in police to record all appropriate incidents with cameras is very high
- 58% were aware of cameras after personal issue which was significantly higher than 26% in the period immediately before
- Only 11% of residents in the 'before' period had seen a police officer using BWV cameras which significantly increased to 29% in the 'after' period
- There was an overwhelmingly positive (84-96%) public attitude toward police use of cameras in:
  - gathering evidence
  - identifying criminals
  - increasing convictions
  - improving training
  - improving disciplinary procedures
- Before personal issue, IoW public was less convinced cameras would reduce: complaints against the police; assaults on police; and crime and ASB. All ratings significantly improved after the roll out of personal issue BWV cameras
- There was a significant rise (to 82%) in IoW public belief that all uniformed officers should use cameras.

## Isle of Wight Police Officers' views on BWV camera use

- Officers' views on BWV cameras, where comparable, largely coincided with those of IoW public
- IoW officers had significantly lower confidence than the public in cameras reducing assaults on police, but significantly higher confidence in them reducing complaints against them
- Frontline officers were significantly more positive than non-frontline (mainly investigative) officers in valuing the deployment of personal issue BWV cameras on the IoW
- The vast majority of officers agreed that all PCSOs should wear BWVs when on duty.

## Changes in occurrences & recorded crime 'before' and 'after' the introduction of BWV cameras

- 30-31% of occurrences on IoW were likely to be affected by frontline BWV camera deployment, compared to 23% in the rest of Hampshire. Of these, 35% were ASB-related and assault-related on IoW. Overall, these were reduced, by 8.8%, in the year after personal issue of cameras
- The reduction in types of occurrences and crimes where cameras were most likely to have an impact was noticeably larger on IoW than in the rest of Hampshire
- Overall, reported occurrences reduced by 2.5% in the rest of Hampshire, but 5.6% on IoW. There was little difference in the scale of reductions in non-BWV affected occurrences (2.7% and 3.9% respectively). However, there was a large difference in the scale of the drop for BWV-affected occurrences: 2% in the rest of Hampshire, but 9.3% on IoW
- For the rest of Hampshire, overall crime dropped by only 3%, but by 7.8% for IoW. As with occurrences, difference between Hampshire (3.6%) and IoW (4.4%) for non-BWV affected crime was small. However, for BWV-affected crimes, there was a 14.7% **rise** in the rest of Hampshire, but a 17.7% **drop** on IoW
- There has been a significant rise on IoW in the number of recorded domestic assaults and the proportion of these that were recorded as crime has risen significantly.

## Changes in criminal justice processing (domestic assaults) on the Isle of Wight

- The number of domestic abuse occurrences increased after personal issue of BWV cameras on IoW
- In the year before personal BWV camera issue on IoW, only 3 occurrences went on to be recorded as domestic assault, but none proceeded beyond that to arrest or charge
- The equivalent figure in the year after personal issue of BWV cameras was 21 recorded domestic assaults. In 10 of these, BWV camera footage was taken
- 7 of the 10 camera footage cases led to arrests, of which 4 led to sanctioned detections and charges. These resulted in 2 early guilty pleas without trial, 1 guilty plea in court before trial commencement, and a not guilty verdict
- In the 11 cases where no camera footage was taken, only 1 case proceeded to arrest and resulted in community resolution.

## Changes in complaints against the police on the Isle of Wight

- The INFRA system (lower level complaints) data show that complaints on IoW reduced by 15% on IoW in the period after personal BWV cameras were issued, while the equivalent figure for the rest of Hampshire was only a 5%
- The Centurion system (more serious complaints) data show a reduction of 11.5% in complaints on IoW compared to an equivalent increase of 6.9% in complaints for the rest of Hampshire

- The reductions in complaints on IoW were mainly down to larger proportionate reductions in the higher volume urban districts of Newport, Ryde and Shanklin, where complaints were down by 17.8%
- Complaints relating to IoW frontline policing: ie, 'conduct-related' and PACE Codes A&B (searches), reduced, but there was no change in complaints of assaults or procedural complaints
- Complaints related to detention in the police station also reduced.

## Human factors: integration of BWV cameras in practice

- IoW officers were positive and clear about on the benefits of frontline camera use.
- There is need to address the disparity in BWV camera use between the West of IoW and the significantly lower use on the East of the island.
- Training in proactive, rather than passive, camera use is required to improve the evidential quality of footage.
- The cameras need to be reviewed against frontline officer feedback so that they are more ergonomic and robust.
- Implementation of a single business process needs to be considered along the occurrence/crime/investigative continuum, so that investigative officers' difficulties with adapting to the requirements of digital evidence are addressed.
- There is a clear demand for a networked system that supports the viewing and downloading of video footage from geographically different locations.

## Suggested actions based on findings

- Evaluations should focus on BWV cameras' frontline policing impact on specific occurrences and crimes that relate to: low level public order offences; anti-social behaviour; assaults (including against police); and domestic abuse. Publicity and public expectations should be aligned with this
- Existing police databases, including complaints data and camera use data, should be reviewed and aligned so that more effective measurement and management information is available on camera use. This will also involve CPS and court data systems
- Different training needs should be addressed for frontline and investigations officers. All training, including police officers, PCSOs, civilian, CPS and court staff, requires an evidence-based approach to improving the evidential value of camera deployment and footage. Frontline officers should be trained to use cameras proactively, rather than passively, in this regard.



# Introduction: Background to the project and outline of research design

## Background

The use of BWV cameras has increased at a great pace in England and Wales (E&W) over the last 2-3 years and looks set to accelerate still further. This is also the case in Canada and USA. Hampshire was the first police force in the UK to issue the cameras to all officers (and PCSOs) in one administrative area. The area, the Isle of Wight (IoW), is geographically separated from mainland Hampshire and as a result is relatively self-contained. It covers an area of 147 square miles and lies just off the South coast of England. While it is administratively distinct, with its own council, it is included in Hampshire constabulary's remit. The IoW population is approximately 140,000, 1 in 6 households is comprised of a single person over 65, and 94.8% of residents recorded as white British (Isle of Wight Council, nd).

The Institute of Criminal Justice Studies was commissioned by Hampshire police to examine the extent to which it might be possible to measure the impact of personal issue body worn video cameras on IoW and provide evidence from that process on the extent to which BWV cameras have impacted on police practice and performance. This is, therefore, the first independent evaluation of full personal issue of BWV cameras (ie, all officers have cameras, rather than a sub-sample of them) and can be regarded as a large, broad based pilot study.

Hampshire police implemented Operation Hyperion on 1 July 2013 which effectively rolled out BWV cameras to every officer and PCSO on IoW on that day. Around 160 cameras were issued to all frontline officers: Targeted Patrol Team officers (TPT); Safer Neighbourhoods Team officers (SNT) and Police and Community Support Officers (PCSOs). A small number of road policing officers, dog handlers and custody officers were also issued with BWV cameras. Firearms officers were not issued with BWV cameras as there are specific technical and national policy issues that are being researched separately.

For this project, the cameras were supplied by Reveal Media. Prior to 1 July 2013, 16 lower specification cameras had been issued on IoW, but only 10 were in operation and not on a systematic or personal basis. The cameras were used to trial their reliability, robustness etc. but are judged to have otherwise had negligible impact on the police environment during the period of their availability. However, many of the issues identified in the Essex domestic abuse study (Owens et al, 2014 p.19-20) regarding practical limitations of the devices limiting officer use were ironed out in this period before the evaluation commenced (see Goodier, 2012; 2014).

## Evaluation design

Operation Hyperion was originally scheduled to be implemented on 1 April 2013, in line with the start of the financial year and, therefore, existing accounting periods for police data returns, etc. However, there were delays and it was eventually launched on 1 July 2013 with associated local publicity, organised by Hampshire police.

Since the operational decision had already been made to issue cameras to all frontline officers, the evaluators' task was to provide a research design that would accommodate this. It is important to point out that this evaluation pre-dates the creation of the College of Policing and its programme of evaluation

aimed at forces who are about to introduce partial roll outs of BWV cameras, which lends itself to random controlled trials (RCTs). In the context of full personal issue on IoW, it was not possible to interfere with operational decisions. The RCT trials are likely to produce complementary findings to ours and are focussed on assessing the extent to which cameras work in different environments and for different purposes. Our study has a different focus and is aimed at developing an approach which can be used once forces inevitably decide to adopt personal issue for all officers. Indeed, in addition to Hampshire, other forces such as Staffordshire, Lancashire, Durham and Bedfordshire have already committed themselves to personal issue. In these circumstances, operational exigencies have ensured that random allocation evaluation methods will not be possible without taking back cameras that have already been issued. Since personal issue is likely to become the norm over time, the style of evaluation carried out here is therefore likely to be of increasing relevance for police managers, and those that hold them to account in monitoring and assessing the effective and efficient use of BWV cameras.

We have opted here for a triangulated (Denzin, 1970) or multi-method (Bryman, 2012) evaluation design, relying mainly on 'before and after' measures to provide a convergent and more valid picture (Bryman, 2012) and enhance confidence, or at least reduce uncertainty, in the interpretation of results. Given the limitations of the research environment, we felt that our approach would deepen understanding of processes and would be the best way to test whether: BWV cameras would make a difference to policing on the IoW; what that difference might be; how we might measure it; and whether significant differences could be detected where they might be expected/predicted.

We also felt there was another key element to this approach which was effectively commissioned to evaluate changes to operational practice. While this study, of itself, was not a piece of participatory action research (Whyte, 1991), the design includes many of these elements. In one sense it can be regarded as the first part of a larger study where the results can be taken forward and acted upon by police practitioners, managers and policymakers. Indeed, the design is aimed at maximising Patton's (1997) 4 central tenets of: utility; relevance; practicality and, crucially, meeting the information needs of decision makers. As such, we have incorporated, as far as possible, a Utilization-Focused Evaluation approach. Importantly, this involves combining evaluator and stakeholder input, and is aimed at providing practical value for both police operations and policy making (Weiss, 1997). In order to ensure that stakeholders' expertise was recognised as valuable and was utilised in the evaluation, we carried out a multi-stage consultation process with field experts to ensure that we examined the types of frontline occurrences and crimes they thought were most likely to be affected by the use of BWVs.

The central before and after measures used (Time 1 was 1 July 2012 to 30 June 2013; Time 2 was 1 July 2013 to 30 June 2014) were:

- Occurrences (all incidents reported to the police) and crime (including their relationship to each other)
- Criminal justice process data (domestic assaults)
- Complaints against the police.

A public opinion survey was necessarily carried out at different dates to the above measures, ie, March and April 2013, prior to the introduction of personal issue of BWV cameras, and April to June 2014 after the

introduction of the cameras, in order to lessen seasonality effects and allow time for camera use to be established in practice.

Additionally, police attitudes to BWV cameras were measured at the mid-point (December 2013 to January 2014) of the 'after' year period.

Finally, Human Factors research was carried out for the full 'after' period of the 1<sup>st</sup> year of Hyperion's operation, to give a qualitative picture of how changes were experienced and reacted to by officers.

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# Chapter 1: Isle of Wight Police Body Worn Video Camera Public Opinion Survey

## Introduction

Body worn cameras were issued to every IoW police officer and PCSO in frontline policing on 1 July 2013. It was important, therefore, to establish whether there was a clear public mandate on the IoW for issuing personal issue BWV cameras<sup>1</sup>. It was also important to measure whether personal issue of the cameras resulted in positive or negative changes in public opinion. We therefore carried out a 'before' survey in March and April 2013, in advance of any publicity and the eventual roll out of personal issue cameras, and then an 'after' survey, once the cameras had settled into operation, in April to June 2014. This resulted in 991 valid responses in the 'before' survey and 1,080 in the after survey. The questionnaire (see Appendix 4) was agreed with Hampshire police in order to address their main concerns. All questionnaires ensured that respondents were residents of IoW, and not visitors or tourists.

Between the first and second public opinion surveys, publicity took the following forms. Hampshire Constabulary arranged and pursued a range of publicity options on IoW to raise awareness of BWV cameras being used by police officers. A press release on Operation Hyperion was covered by regional media at the end of the first survey period and the police project leader, Inspector Steve Goodier carried out interviews with the IoW main media outlets. The force held a BWV camera exhibition event at its southern training HQ at Netley, with regional media access to test examples of BWV footage. The policing minister, Damian Green, made a visit to Hampshire Constabulary in August 2013 to see a BWV demonstration and this received regional TV and press coverage, social media shares via Facebook and Twitter, and a video uploaded to the Government's official website. Following news coverage of alleged police corruption such as Plebgate and Hillsborough, there was national media interest in BWV on the IoW, particularly its potential to avert and resolve complaints. Inspector Goodier was interviewed on BBC national TV news and the Guardian newspaper in October 2013, when the IoW study was also mentioned in an article on BWV cameras' effects by New Scientist magazine. In January 2014, the Home Office announced further funding for personal issue BWV cameras in Hampshire and a media release on this was picked up by regional media, including interviews with Hampshire Chief Constable Andy Marsh and Inspector Steve Goodier. The Mark Duggan shooting inquest conclusion, in January 2014, led to renewed national media interest in BWV and Inspector Goodier was interviewed live on ITV1's This Morning programme. Insp Goodier and the Chief Constable Andy Marsh also recorded TV interviews about BWV for ITV1 Tonight's 'Trust in the Police' programme, which broadcast Hampshire BWV footage in February 2014. Insp Goodier's presentations to national police conferences about BWV on the IoW were reported on by the Police Oracle website, which also interviewed CC Andy Marsh about his new role as national BWV lead for the College of Policing. In March 2014, a TV interview with CC Andy Marsh was uploaded to the 'Justice Gap' news website, which also screened an example of Hampshire BWV footage.

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<sup>1</sup>This also satisfies the following formal requirements: 1<sup>st</sup> principle of the Data Protection Act (fair processing); 7<sup>th</sup> principle of the Body worn video camera National Guidance; and the Information Commissioner's Office's privacy impact assessment.

## Distribution methods and sampling

Although planned as an online survey, we had identified that the Isle of Wight had particular population characteristics that might skew results. In particular, we know that older people are less likely to respond to online surveys (ONS Statistical Bulletin 2012, p.2), and women in all age categories are also less likely than men to do so (ONS Statistical Bulletin 2012, p.5). The IoW population does have a higher female population than male, and there are a disproportionately high number of elderly women. The island also has a disproportionately large elderly male population (IWC 2011, p.2). Finally, IoW has lower income and higher deprivation than the South East of England, plus lower than national average educational attainment (IWC 2011, pp.1-4), which are further factors limiting internet access internet (ONS Statistical Bulletin 2011, p.7, p.3). We therefore ensured that hard copy questionnaires were completed through a) a self-return postal survey distributed through the local County Press newspaper and b) made available by PCSOs at key locations and events. Around three-quarters of responses in both time periods came from the online survey and a quarter from hardcopy.

We also weighted the final data (Maletta ,2007; Acton, Miller, Maltby and Fullerton, 2009) to adjust for an age and gender profile that was representative of the IoW. (Full details of sampling and weighting are provided at Appendix 1.) Due to anonymity requirements, it was not possible to identify the extent to which respondents in the same time periods overlapped.

## BWV awareness and involvement

The first element of the survey aimed to establish the level of awareness of BWVs on the IoW and the extent to which this changed after the introduction of personal issue cameras to all frontline police officers and PCSOs. This was done using a hierarchy of 3 questions on whether residents were: aware of police using BWVs; had noticed police using BWVs while on duty; and had been involved in a police incident where BWVs were present.

In the 'before' period, only 25.6% (n=254) of IoW respondents were aware of the police using body worn cameras, but after personal issue, this proportion had risen significantly<sup>2</sup> to 58% (n=622, or 126% improvement) establishing that a majority of respondents were aware of the cameras in the 'after' period. The largest single way in which the IoW public were made aware was through media publicity (TV, newspapers, etc.) which rose from 31% of participants before BWV personal issue to 43% in the 'after' period (full details of the ways in which the IoW public became aware are in Table 4.19 of Appendix 1).

Only 10.8% (106/991) of residents in the 'before' period had seen a Police Officer using BWV while on duty, but this significantly<sup>3</sup> increased to 29% (229/991) in the 'after' period.

Not surprisingly, few participants had been involved in an incident where BWV was used in either survey period. However, the proportion did significantly<sup>4</sup> increase from 1.2% (n=12) in the 'before' period to 5.5% (n=58) in the after period.

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<sup>2</sup>  $\chi^2$  (1, n=2067) = 220.7, p = .000, phi = -.328. (Effect size: medium).

<sup>3</sup>  $\chi^2$  (1, n=2065) = 104.607, p = .000, phi = -.226. (Effect size: small-medium).

<sup>4</sup>  $\chi^2$  (1, n=2042) = 27.389, p = .000, phi = -.119 (Effect size: small).

## Public confidence in BWV

The second element of the survey examined changes in public confidence in the potential of BWV cameras to impact on key elements of police performance.

Respondents were first asked to assess how much they trusted the police to record all appropriate incidents with BWV cameras. This was done according to a Likert Scale ranging from 1 (max distrust) to 6 (maximum trust). The results from the 'before' survey already showed an encouragingly high level of trust in the police ( $M = 4.8$ ). This score improved marginally, but not significantly<sup>5</sup>, in the after survey ( $M = 4.9$ ) suggesting that the level of trust has remained stable and high during the period in which personal issue was implemented.

Respondents were also asked if they thought that police use of BWV cameras would help improve the key elements of policing identified as expectations by the sponsoring force and by existing literature. These are listed in Table 1.1 below.

**Table 1.1: Public confidence in BWV to help with specific police issues: times 1 and 2**

BWV will help to:	Time 1		Time 2		Sig.
	N	%	N	%	
Gather Evidence	902	96 (n=940)	993	95.8 (n=1036)	X
Identify criminals	880	93.5 (n=941)	971	94.1 (n=1035)	X
Increase likelihood of conviction	842	90 (n=936)	972	94.5 (n=1029)	✓
Improve training	768	82.1 (n=935)	863	84.2 (n=1025)	X
Improve disciplinary procedures	754	80.7 (n=934)	853	84 (n=1015)	X
Reduce complaints	711	75.6 (n=940)	833	81.1 (n=1027)	✓
Reduce assaults on police officers	642	68.4 (n=939)	764	74.8 (n=1022)	✓
Reduce crime and ASB	599	63.7 (n=941)	711	69.2 (n=1027)	✓

As Table 1.1 shows, confidence was already extremely high (90% plus) in the 'before' survey that BWVs would assist in: gathering evidence; identifying criminals; and increasing the likelihood of conviction. These are, in effect, measures of confidence in the technology. These levels of confidence remained stable or increased marginally, except for confidence in 'improving the likelihood of conviction' which significantly<sup>6</sup> improved, from 90% to a very high 94.5%.

Confidence in BWVs to improve police training and disciplinary procedures was already high (80% plus) in the 'before' survey, and while these levels improved encouragingly, they did not do so significantly.

The remaining 3 measures, ranked as having the lowest levels of confidence, in Table 1.1 in the before survey, can, importantly be viewed as relating more to police front line performance. These all improved significantly. There was more confidence in BWVs: reducing complaints against the police (up 5.5% to

<sup>5</sup> Independent sample t-test (equal variances not assumed) Time 1 ( $M = 4.8133$ ,  $SD = 1.40905$ ) and Time 2 ( $M = 4.8996$ ,  $SD = 1.31472$ );  $t(1913.850) = -1.396$ ,  $p = 1.63$  (two tailed). Mean difference =  $-.08623$ , 95% CI:  $-.20736$  to  $.03489$  is very small (eta squared =  $.001$ ) with only .1% of the variance in trust explained by time 1 or time 2 grouping.

<sup>6</sup>  $\chi^2(1, n=1965) = 13.385$ ,  $p = .000$ ,  $\phi = -.084$ . (Effect size: small).

81.1%<sup>7</sup>); reducing assaults on police officers (up from 68.4% to 74.8%<sup>8</sup>); reducing crime and ASB (up 5.5% to 69.2%<sup>9</sup>). These are important changes to the areas where there was least confidence, as we shall see when we consider the results in the occurrences and recorded crime chapter below.

Finally, there was also a significant<sup>10</sup> rise in the proportion of the IoW public from the 'before' survey (75.3%, n=709) who believed that all uniformed police officers should use BWV cameras while on duty, to 81.5% (n=837) in the 'after' survey.

Overall, the survey results strongly suggest that the IoW public have a high level of confidence in BWV cameras having a positive effect on policing, and that this confidence has further improved, especially for frontline policing, since the introduction of personal issue cameras on IoW.

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<sup>7</sup>  $\chi^2$  (1, n=1967) = 8.384, p = .004, phi = -.067. (Effect size: small).  
<sup>8</sup>  $\chi^2$  (1, n=1961) = 9.519, p = .002, phi = -.071. (Effect size: small).  
<sup>9</sup>  $\chi^2$  (1, n=1968) = 6.610, p = .010, phi = -.059. (Effect size: small).  
<sup>10</sup>  $\chi^2$  (1, n=1969) = 10.954, p = .001, phi = -.076. (Effect size: small).

# Chapter 2: The Views of Police Officers on IoW

## Introduction

In addition to assessing public attitudes to BWV cameras, it was important to gauge the equivalent attitudes of the police officers on the IoW. We have also, therefore further analysed the results of an additional element to the contracted evaluation, supervised by the lead researcher: an online survey of police officers on the IoW (Goodier, 2014). The survey was administered at a single point mid-way through the Time 2 period (December 2013 to January 2014). It builds on a previous survey (Goodier, 2012) that was not comparable with the new survey and the focus was therefore ensuring the new police survey was comparable to the IoW public opinion survey reported on above. (See Goodier, 2014, for the police officer survey questionnaire.)

## Police Officer survey sample

One-hundred-and-thirty-five officers responded to the survey out of a possible 194 (including non-frontline officers), providing a valid response rate of 70%. The data were then weighted by gender and rank to be more representative of the full complement of IoW officers (full details of sampling and weighting are provided at Appendix 2). The response rate compares favourably with the Essex domestic abuse BWV camera study (Owens, Mann and Mckenna, 2014 p.13) but importantly, where the findings of the 2 surveys are comparable, they are generally in tune with each other, helping to build an evidence base in an under-researched area.

## Comparisons of IoW Police Officers' views with IoW public opinion

In analysing the data, it was important to look at any potential differences between frontline officers (TPT and SNT) and non-frontline officers (investigation and custody), as well as between police and public (at Time 2 of the public survey). Table 2.1 below shows the results of these comparisons.<sup>11</sup>

**Table 2.1: Comparison of IoW police and IoW public's views on the likely impact of BWV cameras**

BWV will help to:	Frontline % Agreed	Non-Frontline % Agreed	Overall Police % Agreement	T2 Public Agreement
Gather evidence	97.3%	97.0%	97.2%	95.8%
Identify criminals	93.9%	87.9%	92.8%	94.1%
Increase likelihood of conviction	94.6%	90.9%	93.9%	94.5%
Reduce complaints	94.6%	97.0%	95.0%	81.1% <sup>12</sup>
Improve training for new recruits	78.9%	64.5%	76.4%	84.2%
Improve discipline	89.7%	78.8%	87.6%	84.0%
Reduce assault on police	55.2%	54.8%	55.2%	74.8% <sup>13</sup>
Reduce crime & ASB	61.2%	54.8%	60.1%	69.2%

<sup>11</sup> The police and public samples have quite different characteristics, as would be expected. Full sample details are provided in Appendices 1 & 2.

<sup>12</sup>  $\chi^2(1, n=2158) = 27.597, p = .000, \phi = -.115$ . (Effect size: small).

<sup>13</sup>  $\chi^2(1, n=2143) = 18.445, p = .000, \phi = .095$ . (Effect size: small).

As can be seen, there is generally a high level of confidence, with little variation between what frontline officers, non-frontline officers and the public think will be the likely impact of BWV cameras, for most elements. However, the police had significantly lower confidence than the public in BWV cameras reducing assaults on police, but significantly higher confidence in them reducing complaints against them. The positive findings on improving evidence and on increasing convictions is also echoed in the recent College of Policing Essex domestic violence study (Owens et al, 2014 pp.17-18).

It was only when we looked at police specific questions (ie, ones that were not relevant to the public) that significant differences emerged between frontline and non-frontline officers. (The difference between frontline officers and other officers' relationship to BWV cameras is expanded on in Chapter 6.) All officers were asked to rate how much they valued the deployment of personal issue BWV cameras on the IoW. The regularised Likert scale used was from 1 as most negative, to 6 as most positive. The mean score for all IoW officers was a very positive 5.2. However, there was a significant<sup>14</sup> difference between the more positive mean score of 5.3 for frontline officers, and the less positive score of 4.5 for non-frontline officers.

**Table 2.2: Comparison of frontline and non-frontline IoW officers' views on 'full personal issue' and 'compulsory issue' of BWV cameras**

	Frontline Agreed	Non-frontline Agreed	Overall Police Agreement	T2 Public Agreement	Sig between frontline and non-frontline
All POs should use BWV when on duty	85.8%	48.5%	79.0%	81.5%	v <sup>15</sup>
All PCSOs should use BWV when on duty	89.9%	72.7%	86.7%	NA	X
BWV should be compulsory	86.4%	51.5%	80.0%	NA	v <sup>16</sup>

As Table 2.2 shows, there was little variation between officers on whether all PCSOs should wear BWVs when on duty, with the vast majority agreeing with this. However, non-frontline officers were significantly less likely to agree that all uniformed police officers should use BWV cameras when on duty, and the same was the case for whether deployment of BWV cameras should be compulsory for all uniformed officers. Comments provided by the respondents help to explain the differing perspectives of the frontline officers and the back office officers. Frontline officers tended to make brief positive statements, eg:

*"I think this is now an essential piece of kit and I wouldn't be without it, it's impactive and I think people seeing the evidence is better than hearing it"*

*"I consider this to be one of the major steps forward in modern-day policing, it is excellent for evidential purposes and a safety net regarding complaints".*

(Goodier, 2014)

<sup>14</sup> Independent samples T-test: frontline officers ( $M = 5.2683, SD = 1.11952$ ) and non-frontline officers ( $M = 4.5384, SD = 1.73794; t(32.248) = 2.310, p = .026$ , two-tailed). (Effect size: small – medium).

<sup>15</sup>  $\chi^2(1, n=181) = 20.471, p = .000, \phi = -.354$ . (Effect size: medium)

<sup>16</sup>  $\chi^2(1, n=180) = 18.370, p = .000, \phi = -.337$ . (Effect size: medium)

Frontline officers, and the police IoW BWV camera project leader, tended to speak in terms of ‘thinning’ the level of bureaucracy and improving evidence. However, investigative officers tended to argue that the cameras were ‘thickening’ the amount of work they were required to do:

*“...when weighing the overall benefit of BWV against the extra work it produces in terms of viewing and editing it, it is of very little value and overall has a negative or no effect in the majority of cases”*

(Goodier, 2014)

A surprising feature of the introduction of BWV cameras in the UK has been the relative absence of officer resistance. In previous periods of technological change, such as the introduction of patrol cars, radios etc, Ericson and Haggerty (1997) note that they have impacted negatively on officers’ behaviour, and Chan (2001) has documented ways in which some officers resisted new technologies and limited the uses to which technological potential could be harnessed. In contrast, our results show that frontline officers are very positive in their approach to BWV cameras. This may relate to the different emphasis of UK approaches that focus on ‘getting the job done better’ compared to US studies which have more emphasis on changing problematic police behaviour (see Chapter 5 on complaints for a fuller outline on this). Within this context, Chuttur (2009, p.4) has noted that ‘technology acceptance’ is now the leading model in explaining and predicting use of new innovations. In our study, it seems clear that the main requirements of Davies’ (1985 p.24) Technology Acceptance Model (TAM) have largely been met for most frontline officers, ie, perceived usefulness in enhancing personal performance and perceived ease-of-use in relation to physical and mental effort. However, this is yet to be the case for those taking over the case for investigation. Future work will also need to take into account the impact of BWVs on increasing officer self-awareness, which was linked to a drop in officer use of force in the Rialto study (Ariel, Farrar and Sutherland, 2014). These indicative issues will be returned to below in Chapter 6 (the findings from qualitative fieldwork), but before this, it is important to look at changes in reported occurrences and recorded crime.

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# Chapter 3: Changes in Occurrences & Recorded Crime 'Before' and 'After' the Introduction of Personal Issue BWV Cameras

## Introduction

Key questions for existing studies in this new area of research are: 'what are police body worn video cameras for?' or 'what *effect* might they have?' The concomitant of this is to identify what they are not for, or where they are not expected to have an impact. Work that has been carried out so far, or that is in progress, tends to have a very specific focus, such as: reducing complaints against the police; reducing use of force; reducing rowdy drinking; more efficient/cheaper justice processes, reducing civil liability, increasing public reassurance, reducing violent and anti-social behaviour, etc. Most of these 'expected' effects are based on views that they would be axiomatic through camera use or because they relate to specific problems that forces have for which cameras are seen as a possible/partial solution. While a lot of effort had gone into the research methods and measurement of BWV cameras' introduction, it is harder to be clear on the basis for some of the hypotheses. The main exception to this is the Rialto study (Ariel, Farrar and Sutherland, 2014; Farrar and Ariel, 2013) which is based on the development of the convergence of self-awareness theory with deterrence theory in the context of police-public relations (Farrar and Ariel, 2013 p.11).

It was clear at the beginning of this evaluation that there was no overall picture of the how much of total frontline police practice might potentially be affected by BWV cameras, and what this effect might be. The earliest studies in the UK tended to focus on specific 'operational' impact (Home Office, 2007; Fyfe, 2011), such as on 'violent crime', along with evidential quality, time-saving (costs) and professional development. Therefore, we first decided to ensure that we looked at existing police data availability that would give an indication of any changes to frontline policing.

We used two sequential methods for our initial analysis: an 'expert conference' survey; and an analysis of Hampshire police's occurrence and crime recording databases. These are outlined in turn below.

## Survey of experts: methods and sampling

The police use of BWV cameras is currently a new frontier, which is very dynamic. Those with related responsibilities therefore form a disparate group whose collective knowledge is vital to understanding the realistic impact that BWV cameras might have. We therefore adopted a purposive sampling approach that has been used in similar circumstances at conferences (Brown and Heidensohn, 2000; Grant, Garrison and McCormick, 1990; Poole and Pogrebin, 1988) as the best way to ensure engagement with operational, support and policy staff in an area whose boundaries are not yet clear. This method has advantages of: low cost/high target achievement; effective logistics (concentration of an expert group); and use of a single research instrument (Brown and Heidensohn, 2000). It is more difficult to assert that this is a representative group of all experts, but to establish that, and get responses, at this stage, would be a full project on its own.

As noted earlier, while this study was not a piece of participatory action research (Whyte, 1991), it is designed with many of these elements in mind, including Utilization-Focused Evaluation (Patton, 1997) and may be progressed as such in further evaluation beyond this project. Importantly, this involves combining evaluator and stakeholder input, and is aimed at providing practical value for both police operations and policy making (Weiss, 1997). In order to ensure that local and national stakeholders' expertise was recognised as valuable, we therefore carried out a multi-stage consultation process with field experts to ensure that we examined the types of occurrences and crimes they thought were most likely to be affected by the use of BWVs.

We first consulted the lead Hampshire force officer tasked with implementing BWVs in IoW and the 3 data input and management staff directly involved in a scoping study for data collection. These staff were asked to rate all of the recorded categories of occurrences and crime on the extent to which they thought BWVs might make an impact on frontline use. The evaluation team also carried out the same exercise independently. When compared, there was very little difference in the ratings. The practitioners were slightly more inclusive of occurrences involving: threats to kill; wounding; robbery and occurrences involving weapons. All participants agreed to err on the side of inclusion and we agreed on 41 category headings for occurrences (and subsequent recorded crime categories)

At the first Home Office BWV camera national user group conference (NUG)<sup>17</sup>, the agreed combined list of occurrence and crime data recording categories was used as a grid for the delegates to indicate which occurrences and offences would potentially be affected by BWV cameras. There were 11 (out of 23 delegates) respondents and although it was not possible to record all details, there was a mix of: operational Inspectors from 5 forces, a Chief Superintendent, a frontline constable; civilian managers and College of Policing staff. They were also asked to include any other occurrences or crimes that they thought should be on the list. A further element was identified and discussed with Hampshire Police and with subsequent NUG conference delegates. This was the likely impact on domestic violence. This was seen as an important area where the use of cameras was likely to produce an increase in recorded crime, due to the impact that video footage might have on police proceeding with prosecution irrespective of victim participation. An increase in such cases, and especially if that could show successful prosecution, was seen as positive impact.

At a second Home Office national user group conference<sup>18</sup>, the list was used again and 7 delegates (35 attended) indicated that there were 12 main categories of occurrences and crime, often overlapping, where they expected, or had experience of BWV cameras having a frontline impact. Importantly, but perhaps unsurprisingly, these all indicated that BWV positive (reductive) impact in frontline policing would be expected only in 4 broad areas: assaults on police; assaults on others; public order offences: and anti-social behaviour. This amounted to an expanded set of 59 recorded occurrence and crime data types as represented on Hampshire police's database. These findings from the expert groups informed our subsequent analysis of the 'before' and 'after' crime and occurrences measures.

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<sup>17</sup> Weston Favell Police Station, Northampton, 4 December 2014

<sup>18</sup> West Mercia Police HQ, Hindlip/Worcester, 6 March 2014

## The use of recorded crime statistics in this evaluation

Before outlining this analysis, it is important to acknowledge the limitations of these data when used in isolation. There have been concerns over the specious accuracy that can be attributed to recorded crime statistics since the advent of police studies and criminology (see for instance Sellin, 1938). This led many to consider crime rates as useful only in outlining what the police as an organisation found it convenient or useful to focus on (Kitsuse and Cicourel, 1963; Wiles, 1971). Later writers (Bottomley and Coleman, 1981) did ameliorate this to some extent by finding that the victims who reported crimes also had a role in shaping the final recorded figures. Much more recently, the police themselves have been critics of the recorded crime figures and, in one case, have suggested that they should not be made publicly available and only used for police resource management (Wheeler, 2014). It is therefore important to include Crime figures as *one* of the key indicators of the potential impact of BWV cameras, but not in isolation.

In our case, we have used them in a relative sense, not an absolute one. Accepting that crime figures are partial and that practices vary between forces, despite increasingly strict counting rules, we ensured that these practices had not substantially changed throughout both time periods of our study in Hampshire and IoW. HMIC (2014a) have carried out a very recent inspection of crime recording in Hampshire Constabulary as part of a national exercise to improve crime recording (see HMIC 2014b). The report (2014a) on Hampshire was published in November 2014, five months after the end of our research period. Hampshire Constabulary was provided with immediate feedback following HMIC's on-site inspection in June 2014 (the last month of our research period) and steps were not taken to change recording practices until after the research was completed. In tandem with the Hampshire practitioners, we are clear that the data for our analysis would not have been affected. The findings of the HMIC (2014a p.5) Hampshire inspection '*revealed some unacceptable weaknesses*', but again, to the extent that these weaknesses did not vary over the full research time period, we are confident that the relative changes between the 2 time periods were due to factors other than changes in recording practices, and potentially, one of those factors was the introduction of BWV cameras.

A further key issue emphasised by the HMIC (2014a pp.7-8) inspection was Hampshire's relatively poor conversion rate of reported incidents ('occurrences' in the Hampshire recording system) a) into recorded crime, and b) into the appropriate category of crime. However, HMIC (2014a, p.7) do note that '*If an incident does not turn out to be a crime, it must still be logged on the force's incident-recording system or some other accessible or auditable means.*' Our analysis had already taken account of the fact that the well-known issues of under-reporting, under-recording, etc. were less of a problem if initial reported incidents are also analysed alongside 'crimed' data. They provide a greater volume of cases and are a much closer measure of the full range of police calls for service. Taken together, the patterns established by analysing changes in incidents (occurrences) and crime, are the best proxy we have for establishing frontline impact of BWV cameras, in the absence of a targeted public victim survey, which was beyond the scope of this study.

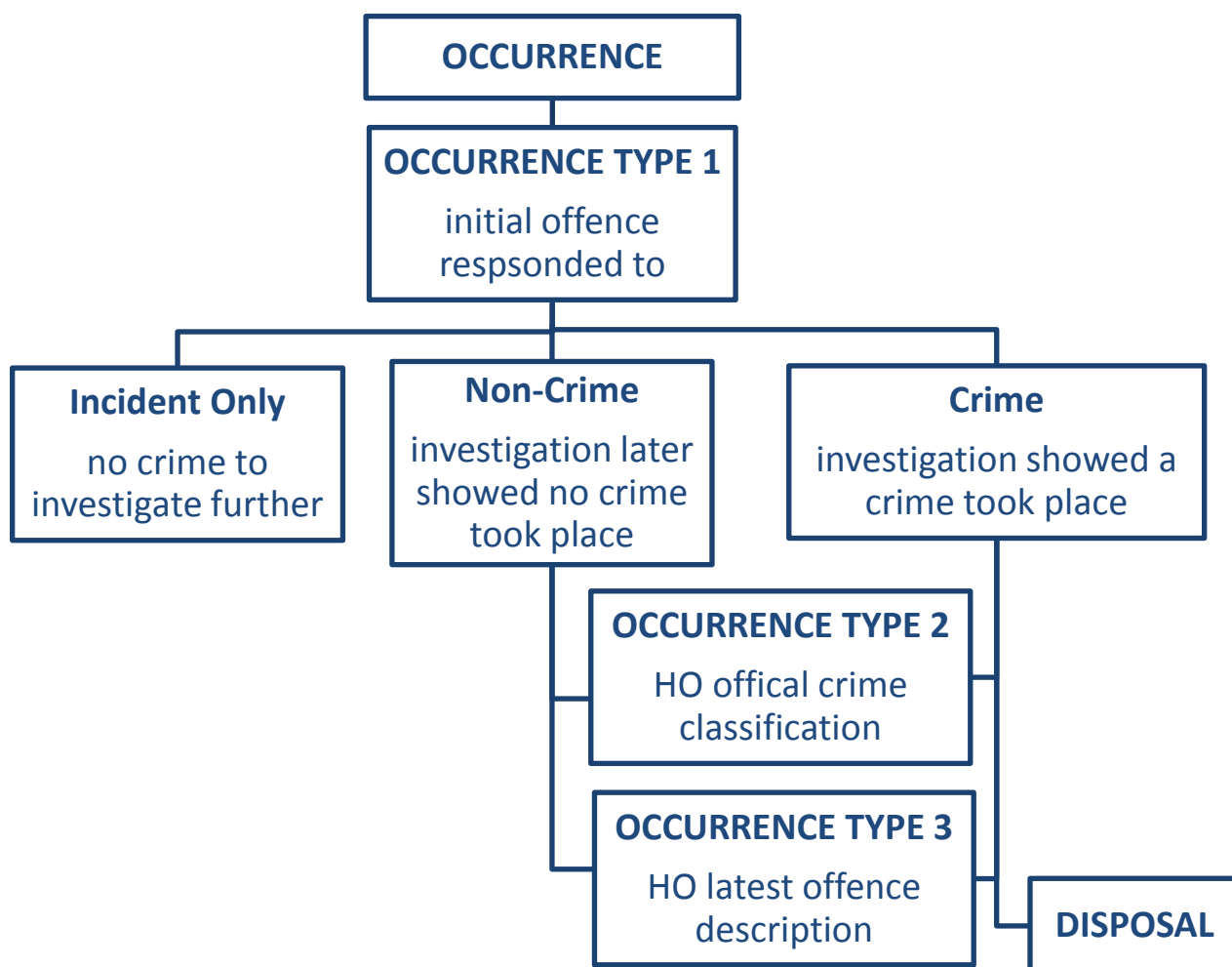
## Occurrence and crime data analysis

This involved extensive work with the Hampshire Police staff who manage the Records Management System (RMS) and other data systems that record a) all incidents where the police are called upon for

service (occurrences) and b) all recorded crimes. These data were checked, cleaned and amended in 2 key ways.

First, the dates and times used for routine statistical counts and returns, within the police and Home Office, rely on recording when the data were entered onto the system. However, we needed to ensure that these were adjusted to reflect the 'real time and date' that events occurred to ensure correct sequencing when looking for changes. Second, the annualised periods used in our analysis also do not match Hampshire Police's annual returns due to the non-standard time periods that were dictated by when the project commenced and changes in (1 July 2013).

The relationship between occurrence status (crime, non-crime etc.) and the occurrence type is complicated. For the purpose of our data analysis, a single occurrence type had to be established, which could be used to analyse both crimes and non-crimes. However, the police database contains three different descriptions/categorisations of each occurrence, referred to as occurrence types 1, 2, and 3. An occurrence's categorisation can change as the occurrence is processed and its status as crime or non-crime is decided. The diagram below illustrates this process.

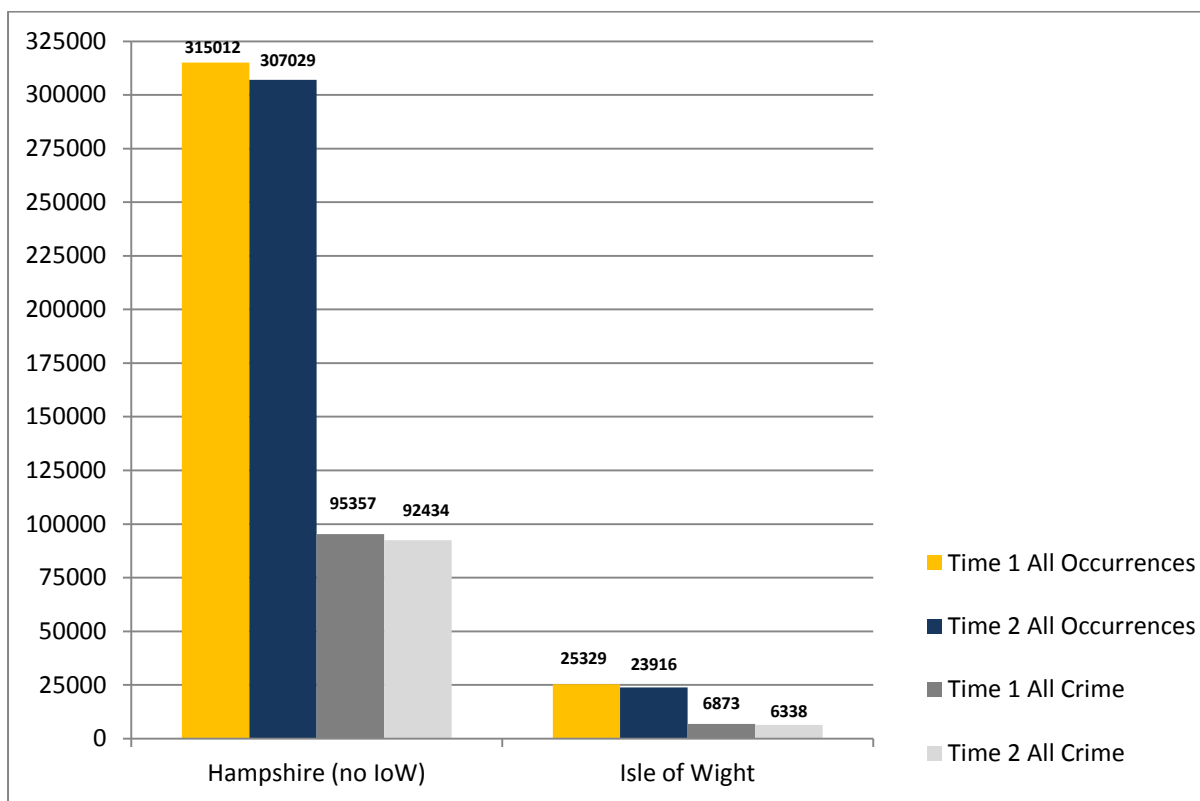


A single occurrence type was created in consultation with the Hampshire police staff who manage the data. On their recommendation, occurrences were inspected on a case by case basis and the combinations of all three occurrence types were used to create the single, consistent occurrence type for use in the

analysis. A similar approach was also taken in the Essex domestic abuse study Owens, Mann and Mckenna (2014).

### Changes in occurrences and crime: an overview<sup>19</sup>

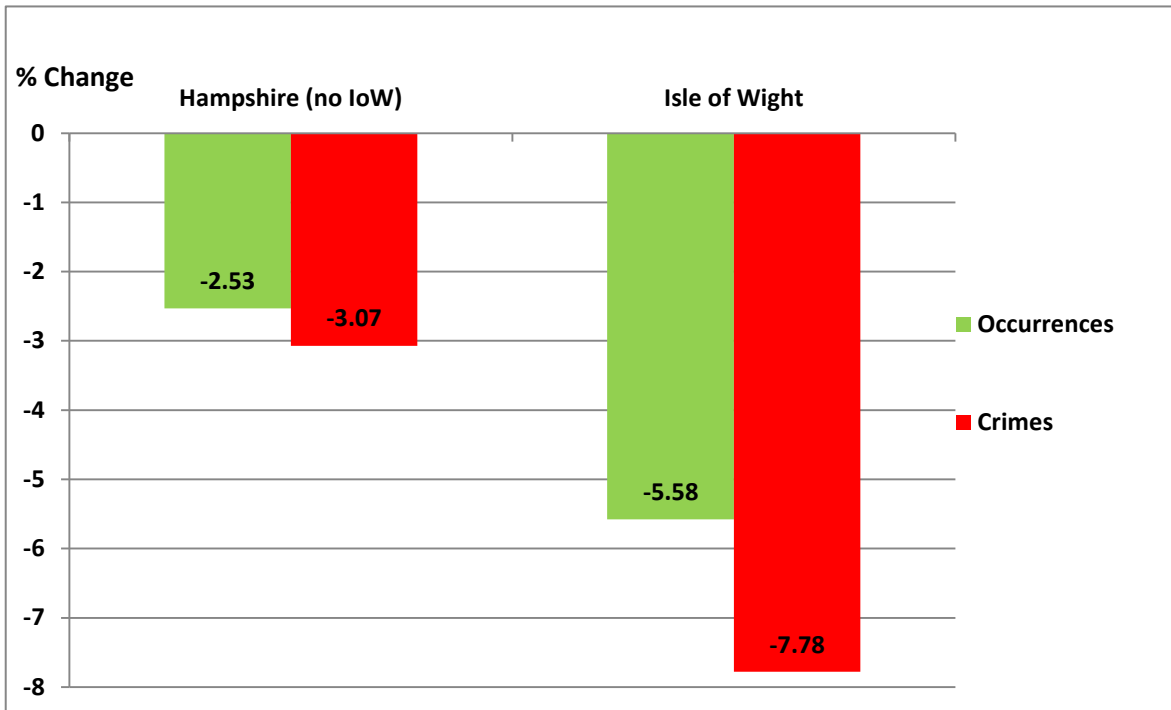
The data collected show changes in occurrences and crime on the IoW and compare this to the background changes in the rest of the Hampshire force during the before and after time periods. This helps illustrate the relative differences in volume between occurrences and recorded crime.



**Figure 3.1: Comparison of changes in occurrences and crimes between IoW and the rest of Hampshire**

Figure 3.1 shows that occurrences overall reduced by 5.6% on IoW, but only 2.5% in Hampshire between Time 1 and Time 2. The equivalent figures for the smaller volumes of crime were a reduction of 7.8% on IoW and only 3.1% in Hampshire. These differences are summarised in Figure 3.2 below.

<sup>19</sup> Tests for significance between IoW and Hampshire are not currently possible. It will require extraction of approximately 675,000 cases for the time periods used.



**Figure 3.2: Summary of proportionate change in occurrences and crime on IoW from Time 1 to Time 2.**

### Differences between occurrences and crime likely to be affected by BWVs compared to those that are not

As noted in the first section of this chapter, we ensured we could separate those types of occurrences which could potentially be affected by frontline BWV camera use from those that could not. A key finding from this study is that we are able to estimate the type and proportion of overall occurrences and crimes (ie, frontline workload demand) on which BWV cameras might have an impact. This will be important in targeting the use of frontline cameras and managing expectations in terms of measuring their impact.

We found that between 30% and 31% (Time 1 and Time 2) of occurrences on IoW were likely to be BWV affected, while for the rest of Hampshire, the figure was lower at 22.5% across both time periods. These proportions are likely to vary between and within different areas, as they do here, and over time within those areas, but calculating this figure will be a key element of any measurement of effectiveness, cost benefits, etc.

Analysing the changes between Time 1 and Time 2 on IoW and the rest of Hampshire, by separating the BWV-affected and non-BWV affected categories, showed some very distinct patterns and suggests that BWV cameras have had a positive impact on IoW policing.

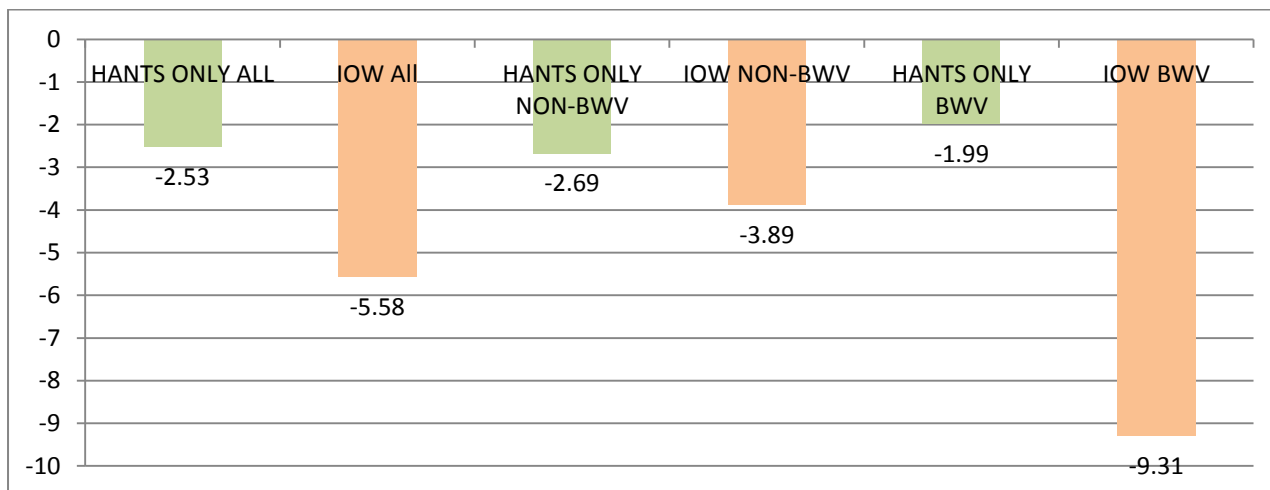
The mechanism by which occurrences might reduce as a result of BWV use is yet to be researched. This, ideally, will require interviews etc. with those involved in incidents. Certainly, the IoW public, and police officers surveyed in this study were less convinced that BWVs would reduce crime and ASB than they were for changes in other factors, but this view did significantly improve for the public, from 64% in T1 to 69% in T2<sup>20</sup>, and was 61% for frontline police officers, dropping to 55% for non-frontline officers<sup>21</sup>.

<sup>20</sup> See public opinion chapter for full results.

It may be that there is a specific deterrent effect on those involved in incidents and/or a general deterrent effect on those witnessing or hearing about the use of cameras. As yet, there is no evidence from those involved in incidents involving BWV cameras. However, there is certainly some evidence, from a small scale evaluation in Falmouth (Commons and Matthews, 2013), that police officers using the cameras, and the public in the areas they are used feel there is a deterrent effect. Many officers noted that the cameras acted as a deterrent, and felt that “people tended to ‘calm down’ and respond quicker to police requests when they knew they were being filmed”. The public also felt the cameras made a difference: “It makes it safer in town. There are less people going to cause problems as they are likely to be caught by using cameras. I think the public will behave more by having them.”

Farrar and Ariel (2013 p.3) have already summarised the potential theoretical underpinnings of how self-awareness and technology might combine to provide a more deterrence-enhancing environment where people adhere to social-norms and alter their behaviour because of the awareness that they are being observed. This draws on classic deterrence theory, where certainty of detection and speed of enforcement are important (Von Hirsch, Bottoms, Burney and Wikstrom, 1999), although not sufficient by themselves. Farrar and Ariel (2013) have argued it may be that mobile BWV cameras are a more powerful moderator of behaviour than existing surveillance cameras such as CCTV and speed cameras, because the dosage is more intense.

This may progress over time as the public become more aware of the use of cameras. As noted above, there has certainly been a significant rise in IoW public awareness of the use of cameras, from 26% in T1 to 58% in T2<sup>22</sup>, which supports this potential explanation. Figure 3.3 below shows the overall changes for occurrences between the IoW and Hampshire, and then the relative differences between BWV-affected occurrences and non-BWV affected occurrences.



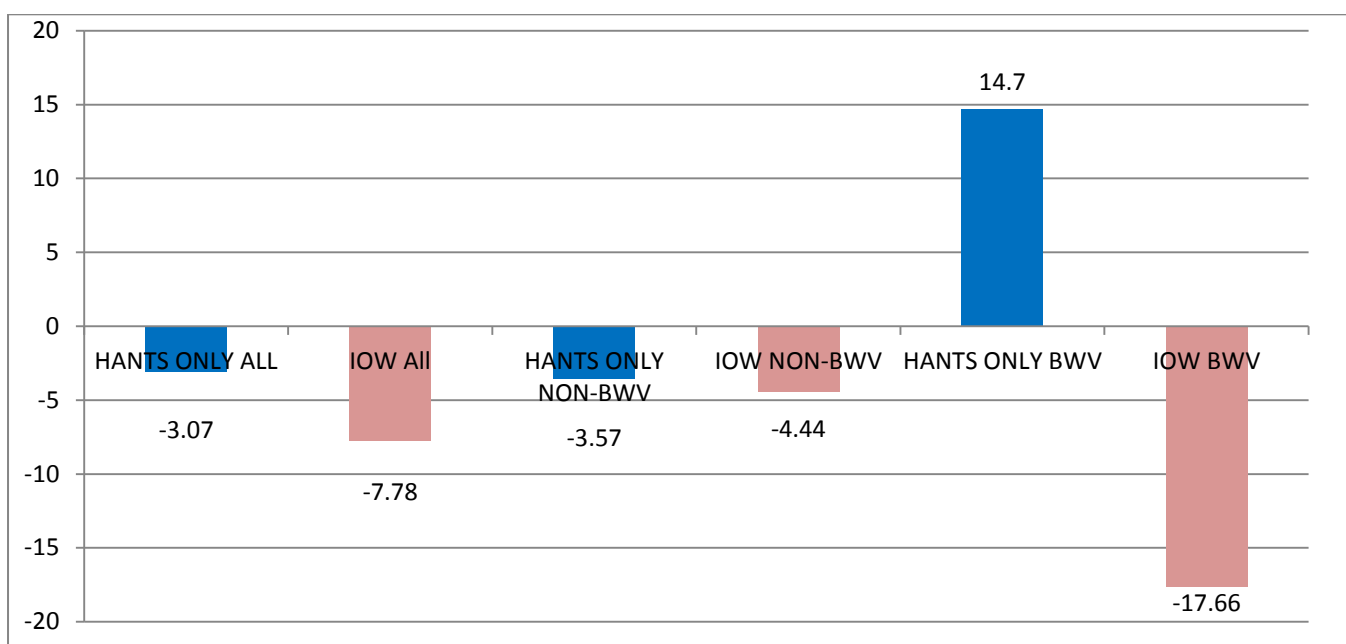
**Figure 3.3: Summary of key changes in BWV-affected and non BWV-affected occurrences, Hampshire vs IoW, Time 1 and Time 2**

<sup>21</sup> See officer survey chapter for full results.

<sup>22</sup> See public opinion chapter above for full results.

It is clear that the scale of reduction was higher overall on IoW (5.6%) than in the rest of Hampshire (2.5%). The difference in the scale of reductions in non-BWV affected occurrences was much narrower, with only a 3.9% drop on IoW and a 2.7% drop in the rest of Hampshire. However, there was a dramatic difference in the scale of the drop in BWV-affected occurrences. These dropped by only 2% in the rest of Hampshire (ie, lower than for non-BWV affected occurrences), while they dropped by 9.3% on IoW.

An even more dramatic difference occurred with recorded crime, as summarised in Figure 3.4 below. For the rest of Hampshire, overall crime dropped by only 3% over the 2 time periods, but by 7.8% for IoW. Again, as with occurrences, the difference between Hampshire (3.6%) and IoW (4.4%) for non-BWV affected crime was small. However, there was striking difference between a **14.7% rise** in BWV-affected crimes in the rest of Hampshire, but an equivalent **17.7% drop** on IoW over the 2 time periods.



**Figure 3.4: Summary of key changes (%) in BWV-affected and non BWV-affected crime, Hampshire vs IoW, Time 1 and Time 2**

Of the BWV-affected occurrences, over the total period of the study, 35% were ASB-related and 27% were assault-related (62% in all) on IoW. Overall, these went down in Time 2 by 8.8%. The next section of this chapter details the changes between the 2 time periods for specific occurrences and crimes.

### BWV-affected only occurrences

As outlined above, occurrences were categorised based on a combination of initial occurrence type and official Home Office classification. Table 3.1 shows the changes in the number and proportion of each type of occurrence potentially affected by BWV camera use.



**Table 3.1: Number and type of occurrence at years 1 and 2**

Occurrence Type	Year 1	Year 2	Difference	% Change
ASB - ROWDY AND INCONSIDERATE BEHAVIOUR	2498	2068	-430	-17
NON-SPECIFIC DISPUTE	741	473	-268	-36
PUBLIC ORDER	543	416	-127	-23
MISC ASB	295	218	-77	-26
ASSAULT ON POLICE	78	52	-26	-33
HARASSMENT	68	45	-23	-34
ASSAULT	1629	1614	-15	-1
WEAPONS OFFENCE	46	27	-19	-41
THREATS TO KILL	39	29	-10	-26
ROBBERY	19	17	-2	-11
BREACH OF ORDER	18	22	+4	+22
ASSAULT - DOMESTIC	8	32	+24	+300
OTHER	281	308	+27	+10
ASB - STREET DRINKING	108	136	+28	+26
ASSAULT - CHILD	295	358	+63	+21
DOMESTIC DISPUTE - BETWEEN ADULTS	1240	1355	+115	+9
<b>TOTAL</b>	<b>7906</b>	<b>7170</b>	<b>-736</b>	<b>-9</b>

### Decreased occurrences

While weapons offences showed the most dramatic proportional reduction, from 46 to 27 (41%), the numbers are relatively small and the reduction is not significant. Significant decreases after one year of personal issue BWV cameras were found for: non-specific disputes<sup>23</sup>, miscellaneous ASB<sup>24</sup>, public order<sup>25</sup>, rowdy and inconsiderate ASB<sup>26</sup> and assault<sup>27</sup>. However, when broken down in this way, the effect sizes are small.

### Increased occurrences

As expected from the national user group surveys, domestic assault showed the largest increase after 1 year of personal issue BWV cameras, increasing significantly<sup>28</sup> by 300% from 8 in the year prior to BWV camera introduction to 32 occurrences in the year after introduction. ‘Street drinking ASB’<sup>29</sup>, assaulting a child<sup>30</sup>, other crimes<sup>31</sup> and domestic disputes between adults<sup>32</sup> also all showed a significant increase between the before and after periods, although the effect size is very small in all cases.

Again, at this stage, it is not clear why this might be the case, but one explanation for all but street drinking, is that greater public awareness may have resulted in greater confidence in reporting to the police. For the relatively small number of street drinking occurrences, the explanation may be rather

<sup>23</sup>  $\chi^2(1, n=15076) = 38.752, p = .000, \phi = .051$ . (Effect size: very small)

<sup>24</sup>  $\chi^2(1, n=15076) = 5.252, p = .022, \phi = .019$ . (Effect size: very small)

<sup>25</sup>  $\chi^2(1, n=15076) = 6.999, p = .008, \phi = .022$ . (Effect size: very small)

<sup>26</sup>  $\chi^2(1, n=15076) = 13.375, p = .000, \phi = .030$ . (Effect size: very small)

<sup>27</sup>  $\chi^2(1, n=15076) = 7.977, p = .005, \phi = -.023$ . (Effect size: very small)

<sup>28</sup>  $\chi^2(1, n=15076) = 15.645, p = .000, \phi = -.034$ . (Effect size: very small).

<sup>29</sup>  $\chi^2(1, n=15076) = 6.323, p = .012, \phi = -.021$ . (Effect size: very small).

<sup>30</sup>  $\chi^2(1, n=15076) = 14.141, p = .000, \phi = -.031$ . (Effect size: very small).

<sup>31</sup>  $\chi^2(1, n=15076) = 5.310, p = .021, \phi = -.019$ . (Effect size: very small).

<sup>32</sup>  $\chi^2(1, n=15076) = 27.029, p = .000, \phi = -.043$ . (Effect size: very small.)

different. It is likely that the role of alcohol inhibits the deterrent effect of the cameras on the frontline, especially when compared to the significant reduction in the much larger number of otherwise ‘rowdy and inconsiderate behaviour’ occurrences. In the Falmouth evaluation (Commons and Matthews, 2013), whose specific objective was to reduce violent crime associated with the night time economy, there was a small increase in the total volume of crimes when BWV cameras were used, but there was an overall reduction in the seriousness of violent offences and officers felt that this was due to the impact of the cameras. This adds further strength to the argument that there is a pressing need to develop more grounded hypotheses on the likely frontline impact of the cameras and to develop finer grain recording systems.

## Crime: an overview

In order to look at changes in crime, we first stripped out types of occurrences, such as anti-social behaviour, that could not have gone on to be ‘crimed up’. This then left only the occurrences where decisions had to be made about whether to convert them into crime or not. This meant we could analyse not just changes in those occurrences that were ‘crimed’, but also changes in ‘crimed and non-crimed’ occurrences together. This is a way of controlling for variability in decisions as to whether to record occurrence as crime or not. The relative distribution of these ‘non-crimed’ and ‘crimed’ occurrences in the 2 time periods of the study are outlined in Table 3.2 below.

**Table 3.2: Crimed and Non-Crime Occurrences by Year on IoW**

Type of Occurrence	Time 1	%	Time 2	%
CRIMED	1738	57	1431	49
NON-CRIMED	1286	43	1489	51
TOTAL	3024		2920	

Crimes were categorised based on a combination of occurrence type and official Home Office classification. Table 3.3 shows the number and proportion of crimes for each type in Time 1 and Time 2. Chi Square tests showed that a) the reduction in ‘crimed occurrences’ was significant between Time 1 and Time 2<sup>33</sup>, and the combined reduction on ‘crimed’ and ‘non-crimed’ occurrences was also significant between the 2 time periods<sup>34</sup>.

<sup>33</sup>  $\chi^2(30, n=5944) = 2261.361, p = .000, \text{Cramer's } V = .356. (\text{Effect size: Large})$

<sup>34</sup>  $\chi^2(10, n=3169) = 23.621, p = .009, \text{Cramer's } V = .086. (\text{Effect size: Small})$

**Table 3.3: Changes in crime type by year**

Crime Type	Year 1	Year 2	Difference	% Change
ASSAULT	1335	1111	-224	-17
PUBLIC ORDER	211	155	-56	-27
ASSAULT ON POLICE	76	49	-27	-36
WEAPONS OFFENCE	32	22	-10	-31
THREATS TO KILL	16	9	-7	-44
OTHER	4	2	-2	-50
HARASSMENT	3	2	-1	-33
ROBBERY	15	15	0	0
ASSAULTING CHILD	26	27	+1	+4
BREACH OF ORDER	17	18	+1	+6
DOMESTIC ASSAULT	3	21	+18	+600
<b>TOTAL</b>	<b>1738</b>	<b>1431</b>	<b>-307</b>	<b>-18</b>

### Decreased crime types

The crime types that showed the most significant decreases after one year of personal issue BWV cameras were: threats to kill (44%)<sup>35</sup>, assault on police (36%)<sup>36</sup>, weapons offences (31%)<sup>37</sup>, public order (27%)<sup>38</sup>, and assault (17%)<sup>39</sup>. It seems that BWV cameras' impact may be most likely with these types of offences which are most likely to be in public or semi-public spaces and where awareness of, and warnings about camera use are most likely in frontline policing.

### Increased crime types

In contrast, only 3 categories of crime that had been identified as potentially affected by the introduction of personal BWV cameras showed an increase in the Time 2 period: assault child; breach of an order; and domestic assault. Of these, only domestic assault increased dramatically, 600% at Time 2<sup>40</sup>.

### Non-crime types

It is important to note that the following occurrences have been removed from this analysis as they are specific only to occurrences that did not become crimes: non-specific disputes; miscellaneous ASB; rowdy and inconsiderate ASB; street drinking ASB; and domestic disputes between adults. (See above section on BWV Affected Occurrences.)

<sup>35</sup>  $\chi^2(3, n=15076) = 11.726, p = .008, \text{Cramer's } V = .028.$  (Effect size: small).

<sup>36</sup>  $\chi^2(3, n=15076) = 454.160, p = .000, \text{Cramer's } V = .174.$  (Effect size: small-medium).

<sup>37</sup>  $\chi^2(3, n=15076) = 126.604, p = .000, \text{Cramer's } V = .092.$  (Effect size: small).

<sup>38</sup>  $\chi^2(3, n=15076) = 187.063, p = .000, \text{Cramer's } V = .11.$  (Effect size: small-medium).

<sup>39</sup>  $\chi^2(3, n=15076) = 7394.683, p = .000, \text{Cramer's } V = .700.$  (Effect size: large).

<sup>40</sup>  $\chi^2(3, n=15076) = 87.810, p = .000, \text{Cramer's } V = .076.$  (Effect size: small). NB: data violated the assumptions regarding minimum cell frequency for Chi squared violated, so result should be treated with caution.

## Occurrences converted into recorded crime

Changes in the proportion of occurrences that were converted into recorded crime (Home Office official categories) in Time 1 and Time 2 were analysed and those that showed an increased level of conversion are detailed in Table 3.4.

**Table 3.4: Occurrence type and crime percentage by year**

Crime Type	Year 1 % Crime	Year 2 % Crime	% Change
DOMESTIC ASSAULT	37.50	65.63	75.00
WEAPONS OFFENCE	69.57	81.48	17.13
ROBBERY	78.95	88.24	11.76
HARASSMENT	4.41	4.44	0.74

These results are encouraging. However, only the improvement for domestic assault was significant<sup>41</sup>.

In contrast, more of the occurrence categories showed a decrease in the proportion converted into reported crime in Time 2, although only assault<sup>42</sup> and public order<sup>43</sup> categories changed significantly between the 2 time periods.

Overall, the analysis of occurrences and crime on the IoW shows some promising avenues of analysis for measuring the potential frontline impact of personal issue BWV cameras in future studies. It has established the type and volume of incidents and crimes that might be expected to be affected by BWV use and shown that there are significant reductions in these compared to those that are unlikely to be affected. This, in turn, will help set realistic expectations for policy makers, police managers and the public.

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<sup>41</sup>  $\chi^2(1, n=15076) = 13.814, p = .000, \phi = -.032$ . (Effect size: very small).

<sup>42</sup>  $\chi^2(1, n=3243) = 74.547, p = .000, \phi = .152$ . (Effect size: small).

<sup>43</sup>  $\chi^2(1, n=15076) = 3.870, p = .049, \phi = .016$ . (Effect size: very small).

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# Chapter 4: Criminal Justice Processes and Outcomes: Domestic Abuse Case Study

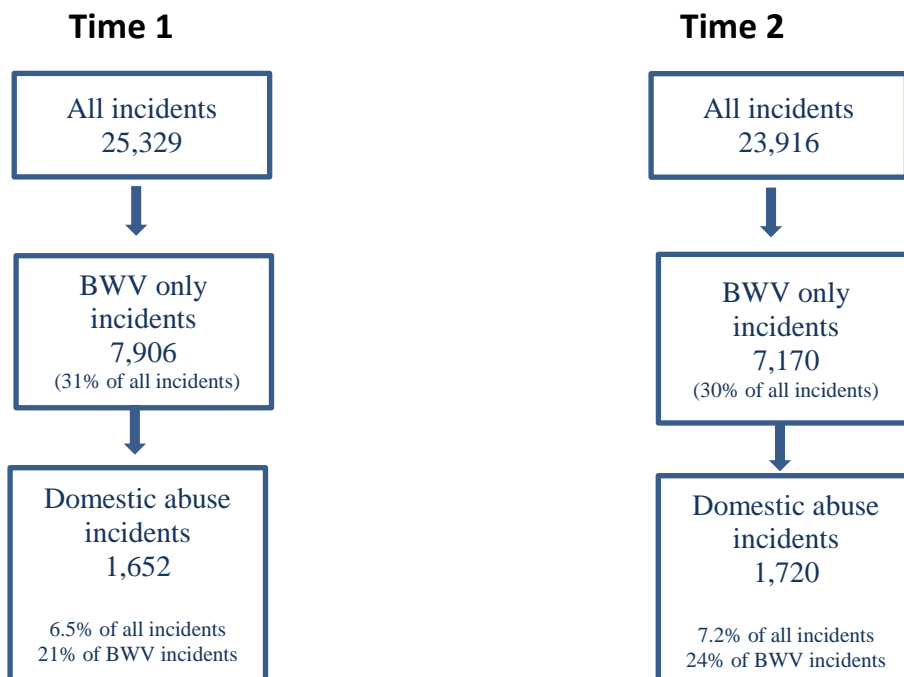
## Introduction

It was not possible to derive many meaningful measures from Hampshire police's separate criminal justice unit 'data universe'. Much work is required for future projects to allow the same type of interrogation of the criminal justice data as was possible for the occurrences and crime data. This will involve being able to combine case outcomes at each of the key stages of the post-incident records with the occurrences and crime database and indeed, with court data and with camera use data. In turn, this will enable full information on the speed and type of decisions to be analysed on: charging; use of police/first bail; time in police custody; stage of guilty plea (and whether footage was involved); proportion of cases referred to Crown Court; police disposal decisions; and court sentencing outcomes. While this was rather ambitious for the scale of this study, given the high profile and expectations surrounding the cameras' potential impact on domestic abuse (see Owens et al, 2014), it was decided to carry out a case study of domestic assault in the 2 time periods of the study. The approach taken below represents a prototype template for how data on all cases should be made available.

## Domestic abuse: an overview

For this chapter, a domestic abuse case has been counted if a) if any offence has received a 'domestic violence flag' or b) has been categorised as a 'domestic occurrence' at any stage throughout its progression through the CJ process. Double counting has been eliminated. Overall, the data presented in Figure 4.1 below include 325 offences that did not receive a 'domestic violence flag' but that had been classified at some point (from reporting of initial occurrence onward) as one of three categories: 'domestic dispute between adults'; 'domestic dispute involving juvenile'; or 'non-crime domestic'.

Our initial analysis is derived from the work carried out on occurrences and crime in chapter 3 above. For both 'before' and 'after' periods, as summarised in Figure 4.1, we first filtered the occurrences data to exclude all calls for service that did not require a police frontline response (eg, giving advice, enquiries, etc.). We then established the number of incidents requiring a response that were likely to be affected by BWV cameras, before finally establishing the number and proportion of these that related to any type of domestic abuse.



**Figure 4.1 Proportion of domestic abuse incidents in before and after time periods**

As Figure 4.1 shows, while domestic incidents accounted for only between 6.5% and 7.2% of all calls for police service in either time period, they accounted for 21-24% of all calls for service that could be potentially affected by BWV cameras. It also shows that while the level of incidents overall, and BWV incidents in particular, went down in the period after the introduction of personal BWV cameras, the number of domestic abuse incidents increased significantly<sup>44</sup>, from 1,652 to 1,720. As noted, this may be due to increased reporting due to the presence of the camera, local publicity, etc. The Essex domestic abuse study (Owens et al, 2014) certainly expected better outcomes for domestic abuse cases, and it may be that if this occurs, victim confidence in reporting will improve.

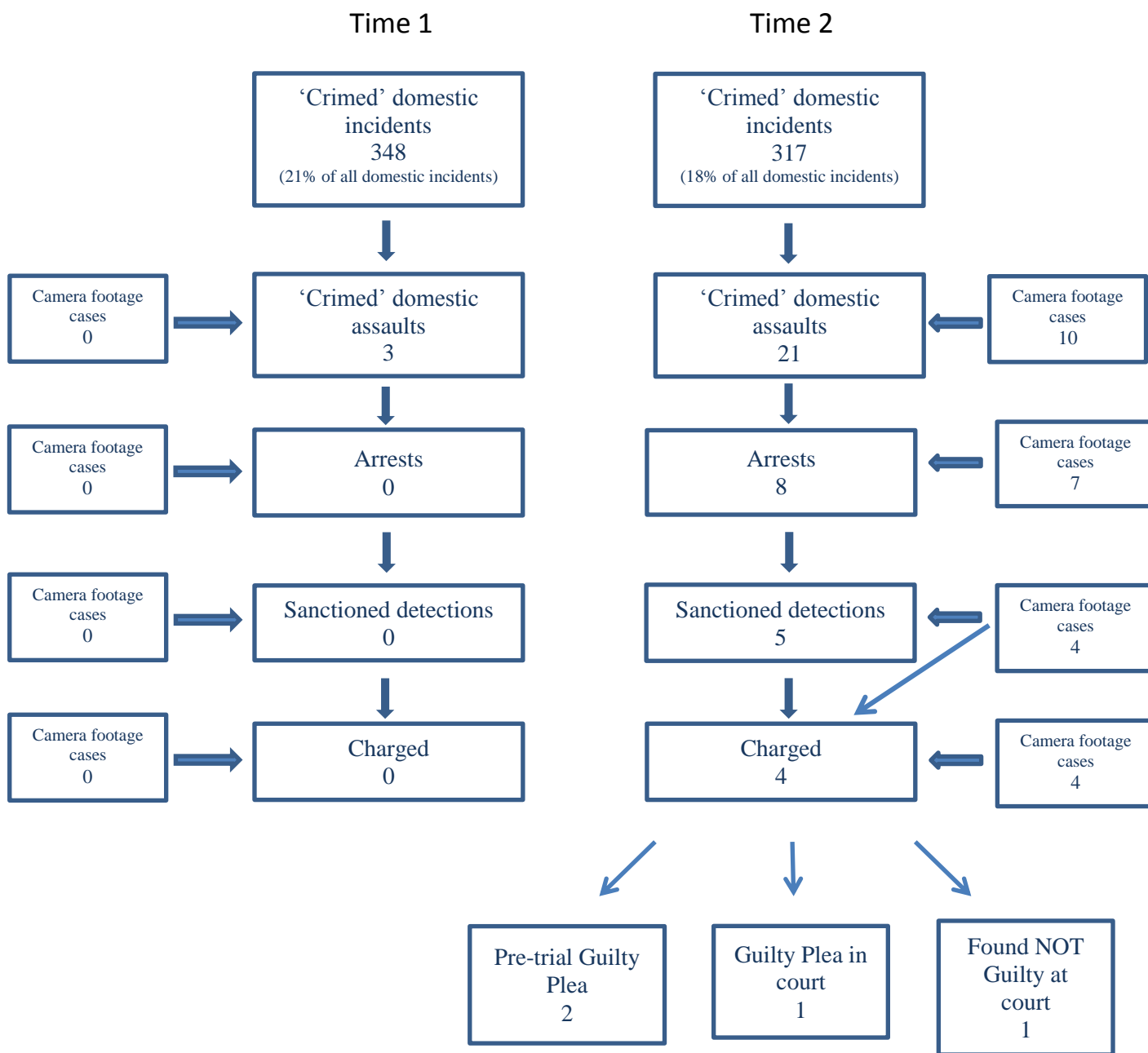
In order to get as close as possible to explaining the potential impact of BWV cameras, we therefore looked at what amounted to the most serious recorded cases, ie, 'domestic assault' in both time periods to assess whether it was possible to determine whether BWV cameras played any direct role. In doing this, we were faced with similar issues to Owens et al (2014 p.11) in Essex in that, while we knew that all IoW officers had cameras at incidents, there was no record within the standard criminal justice database of whether the cameras were used to film the an incident attended, or whether any footage was subsequently used at any stage in the criminal justice process. This therefore required us to carry out a case-by-case search of several databases and to combine this with the separate Operation Hyperion BWV camera 'Scorecard' data, plus variable qualitative text comments. This was far more reliable than attempting to use the nascent 'BWV flagging' system introduced during the study, which was found to be underused and unreliable. In short, the numbers are small and the data had to be collected manually, but the results are promising and focus on the outcomes of the most serious domestic incidents.

Figure 4.2 shows how the use of BWV cameras played a direct role in the conversion of the most serious domestic abuse incidents into convictions for domestic assault in Time 2, with no equivalent process being

<sup>44</sup>  $\chi^2(1, n=15076) = 20.542, p = .000, \phi = -.037$ . (Effect size: very small).



achieved in Time 1 when camera presence was negligible. There was no change in Hampshire police’s policy on dealing with domestic abuse between the 2 time periods.



**Figure 4.2 The involvement of cameras in convictions for domestic assault in 'before' and 'after' time periods**

In the 'before' period, with no camera footage, only 3 domestic assaults were taken forward and recorded as crimes, but resulted in no arrests, sanctioned detections or charges. In the after period, this increased to 21 domestic assaults being recorded, and in just under half of these (10), camera footage was collected. Of these 21 cases, while only 8 resulted in an arrest, 7 of these were from the 10 cases where camera footage was taken. In effect, 7 of the 10 camera footage cases led to arrests, of which 4 led to sanctioned detections that also led to charges. For the 11 domestic assault cases in Time 2 where footage was not taken, there was only 1 arrest, which 1 led to sanctioned detection but no charge.

Of the 8 cases resulting in arrest in Time 2, 5 resulted in 'sanctioned detections'. The single case with no camera footage resulted in a community resolution, while of the 4 for which there was footage and which

resulted in charges, 2 pleaded guilty without going to trial, and 2 were tried. In court, 1 pleaded guilty on the first day and avoided trial, while the remaining case was found not guilty due to 'lack of evidence' despite footage of bruising. The outcomes of the 3 successful prosecutions were common assault, assault and battery and actual bodily harm (ABH).

There was little information on one of the 3 successful prosecutions other than that the woman victim *'could remember nothing about it'* due to the effects of alcohol. In the other 2 cases, no victim statements were required and only the footage of the immediate aftermath and officers' statements were available. Although the number of cases is small, it does indicate that footage was used in all 3 cases without witness statements to obtain successful 'criminal sanction' convictions.

Combined with the Essex domestic abuse study findings (Owens et al, 2014) it does appear, on the basis of the evidence so far, that BWV cameras are having a beneficial impact on domestic assault cases and it suggests that it is possible to use the cameras to ensure a greater number of convictions for domestic abuse. The approach to measurement and evaluation also proves a useful template on which to build future research in this area.

There should, however, still be a note of caution. In our study, we can see in these most serious domestic abuse cases that while BWV cameras were present for deployment at all of these domestic assault incidents, they were only deployed in half of the cases, and even when they were deployed (and we have already shown that this varies geographically), the same considerations that hamper such cases being taken forward in the criminal justice process are still apparent in the qualitative notes. This echoes the Essex study (Owens et al, 2014, p.18) which found that some officers *'had experience, or had heard of cases'* where camera footage had made no difference where victims were reluctant to cooperate further in the investigation, or had retracted their statement. Such cases ended in 'no further action' despite the officers' view that convincing camera evidence had been collected.

In our study, notes show a case recorded as ABH, but despite camera deployment, no further action was taken because the victim *'was unwilling to substantiate complaint'*. In other cases where footage was taken, there was *'No complaint forthcoming from the aggrieved who wouldn't confirm assault'* and *'aggrieved had facial injuries consistent with assault but refused to co-operate with police. Offender was arrested but NFA'd'*

Obviously some of these cases may have been weaker than those proceeded against, and the sort of seriousness scale that was used in the Essex study (Owens et al, 2014) could be developed further to control for this in future studies. Such studies will also need to incorporate the views of local CPS decision makers as the final cases notes here demonstrate.

*'An allegation of assault, theft and criminal damage of a domestic nature. The victim gave an account to attending officers but refused to make a statement or support police prosecution. Statements were obtained from informant and attending officers and BWV was used to record bruises to victim's arm. Suspect arrested at victim's address and was interviewed, replying no comment to all questions. CPS advice sought and NFA disposal decision made.'*

The domestic assault case study does provide a template for the type of criminal justice data capture system that is required if BWV cameras, or indeed, other initiatives, are to be evaluated effectively, not least so that they can provide effective management information. In particular, the data collected on camera use and the data on the point at which guilty pleas are made is of crucial importance in determining the impact of BWV cameras for specific types of occurrences and crime and should be deliverable through routine data queries.

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# Chapter 5: Complaints Against the Isle of Wight Police 'Before' and 'After' Personal BWV Issue

## Introduction

As a measure of the impact of BWV cameras, complaints against the police were given high profile by the Rialto study (Farrar and Ariel, 2013) in the USA, which showed significant reductions in a small police department. This reflects a current difference in emphasis between the United States and the UK. In the USA, the effect of BWV cameras on police behaviour and professionalism is more prominent. For instance, the Rialto study focused mainly on complaints and use of force, while the Mesa study (Rankin, 2013) evaluated reducing civil liability, addressing departmental complaints, and providing operational transparency. Both studies also looked at enhancing criminal prosecution. In contrast, UK studies (Home office, 2007; Fyfe, 2011) have focused more on the impact on crime and the criminal justice process, eg: early guilty pleas; more successful prosecutions; better evidence; reducing paper work; etc. While the impact of BWV cameras on complaints against the police has not been ignored in UK studies, these have not been the main focus of these relatively small scale studies (though this is likely to change rapidly given the number of studies now running in the UK). We have, therefore, analysed the available complaints data for IoW.

Data were collected for the before and after periods from 2 distinct databases: INFRA and Centurion, which are analysed separately below. In discussion with the Hampshire police project leader, we agreed that changes in recording methods over our time period made it difficult to carry out an in-depth analysis (see Appendix 3). The INFRA system, inter alia, records 'dissatisfaction and congratulations' from the public: via telephone; over the counter to a station enquiry officer; or sometimes by letter to a divisional commander. Many of these complaints are at a relatively low level of seriousness. They are entered onto INFRA and allocated to a local Inspector, or a nominated complaints resolution officer to deal with. A proportion of cases entered onto INFRA will be upgraded to a higher level of seriousness and transferred via the Professional Standards Department (PSD) to the Centurion system using a CD1 form. Additionally, in cases where the seriousness of the complaint is obvious initially, they are most likely to be sent straight through to Centurion and will not be recorded on INFRA.

The Centurion system (or derivatives of it) is used by most police forces to record, manage and process Police Professional Standards data. Most serious complaints will, therefore, be recorded directly onto this system, but these will be fewer than entered on INFRA.

In theory, it would be possible to combine INFRA and Centurion data. However, during the life of this project, changes to the governance of complaints handling changed at different times within the 2 systems and the categories used for complaints logging also changed over this period. The Centurion database does not record how many complaints originated from the INFRA database. Finally, the geographical areas referred to also changed over time. It was therefore agreed that the analysis would be limited to those factors where these changes could be reduced or eliminated.

## INFRA complaints

The INFRA system data shows that complaints on loW reduced by 45, from 308 in Time 1 to 263 in Time 2: a reduction of 15%. As Table 5.1 shows, the equivalent figure for Hampshire (without loW) was a 5% reduction.

**Table 5.1: Changes in INFRA recorded complaints between Time 1 and Time 2**

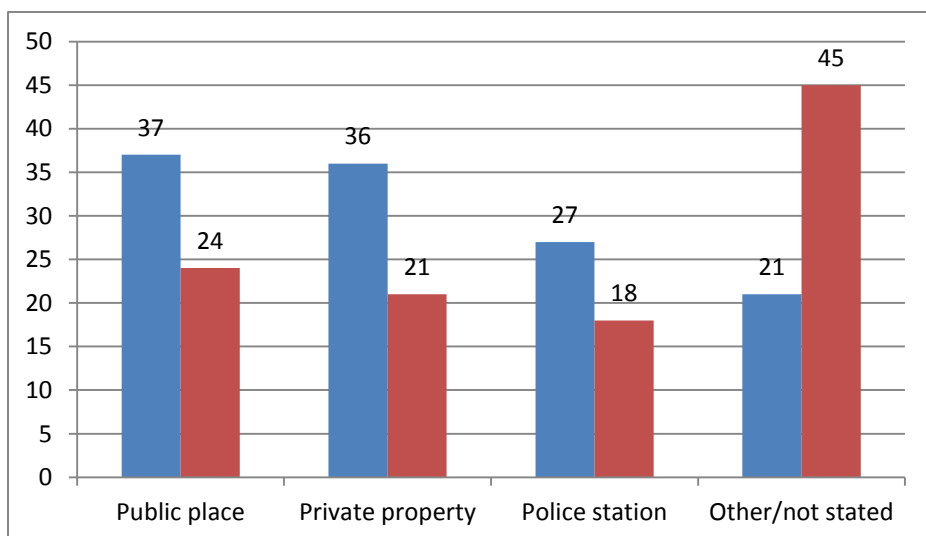
	Time 1	Time 2	Difference n	Difference %
<b>loW</b>	308	263	-45	-15
<b>Hampshire without loW</b>	3727	3546	-181	-5

### CENTURION/PSD complaints<sup>45</sup>

Overall, 122 loW complaints passed through PSD in the before period and 108 in the after period. This is a reduction of 11.5% in complaints on loW in the period after personal BWV cameras were issued, compared to an equivalent increase of 6.9% in complaints for the rest of Hampshire. The IPCC (2015) national figures show that there was a 15% increase in complaints nationally in 2013/14 compared to the previous year.

Importantly, the smaller numbers involved for loW are subject to greater variation through small changes. The differences in before and after measures are mainly down to larger reductions in the higher volume urban districts of Newport, Ryde and Shanklin, where complaints were down by 17.8%. The small number of complaints in the rural districts of Cowes, Ventnor and Yarmouth rose from 3 to 11 in the after period, which brings down to global loW figure to 11.5%.

The records of the nature of the locations (Figure 5.1) which related to the loW complaints show that complaints related to incidents in the police station, in public places and in private property had reduced (by 37 overall). These are areas where BWV camera use might be expected to make a difference, but this reduction was offset to some extent by a rise of 24 complaints in the ‘other’ category, which could not be broken down further.



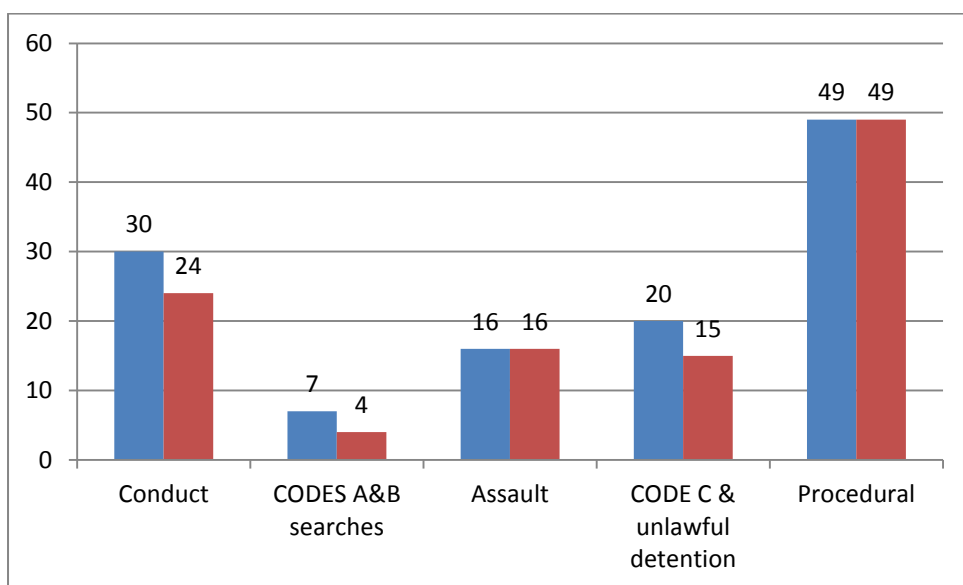
**Figure 5.1: Changes in locations related to complaints in Time 1 and Time 2**

<sup>45</sup> Data extracted from Centurion using a CN4.20 report using the date parameters of Time 1 (1 July 2012 to 30 June 2013) and Time 2 (1 July 2013 to 30 June 2014).

We also looked at which types of complaint were subject to change. We examined the nature of the complaints with the Hampshire project leader and decided to group the Centurion complaints into the following 5 main categories:

- **Conduct-related:** lack of fairness/impartiality, oppressive conduct, discriminatory behaviour, incivility/politeness/intolerance
- **PACE Codes A&B** (searches)
- **Assaults**
- PACE Code C/unlawful arrest/detention
- Procedural: neglect/failure of duty, mishandling property, irregular procedures, improper disclosure, etc.

We agreed that the first 3 of these categories, in bold, were those most likely to be affected by BWV camera as they were largely related to frontline policing, while the remaining 2 were seen as unlikely to be affected.



**Figure 5.2: Changes in types of complaint between Time 1 and Time 2**

As Figure 5.2 shows, of the 3 groups of complaints likely to be most affected by BWV cameras, those relating to incivility/politeness and searches of persons or property reduced, while the number of claims of assault remained the same. Complaints related to detention in the police station also reduced. The largest single category of complaints related to procedural issues, ie, ones that were unlikely to be influenced by frontline BWV camera use. These showed no change between time 1 and time 2.

Goodier’s (2012; 2014) earlier studies had established that officers were largely supportive of BWV cameras in protecting them from malicious complaints, in line with the results of the officer survey above:

*"The footage is clear and can disprove any complaints very quickly. People who make complaints report what they see and what they believe. If the encounter is dealt with correctly, then the BWV evidence is undisputable[sic]" (2012 p.28)*

*"A certain member of the public stated that I kicked and punched him and this was disproved in the complaint procedure. Brilliant bit of kit" (2012 p.28)*

*"I consider this to be one of the major steps forward in modern-day policing, it is excellent for evidential purposes and a safety net regarding complaints" (2014 p.40)*

However, there was also a note of caution about potentially having their own behaviour scrutinised:

*"As long as PSD don't hang on your every word!!!" (2012 p.29)*

And managing expectations if the equipment did not function:

*"I have received a complaint from a member of the public that I was racially motivated during a search. My BWV failed when activated and I was accused that this was done on purpose. This was investigated by PSD which led to a great deal of stress and concern as there was no way of disproving this as the machine was later found to be working fine. If the machine had been working properly, this complaint would be negated at the very outset ..." (2012 p.29)*

## Summary

Overall, based on the limited available data, the findings on the changes in complaints on IoW are encouraging. Taken against previous repeated measures evidence, (Home Office, 2007; Fyfe, 2011; Farrar and Ariel, 2013), this study also suggests that use of BWV cameras is likely to reduce complaints against police. It is also consistent with the views of police officers in the survey outlined above in this report. Most evaluations of the impact of BWV cameras are relatively limited in their scale and design, but taken together, they do show a consistent pattern of reduction in complaints following the introduction of BWV cameras.

The Rialto study (Ariel, Farrar and Sutherland, 2014; Farrar and Ariel, 2013) was relatively small (54 patrol officers), but with a rigorous random assignment methodology that enabled a relatively high number of individual shifts to be analysed. It found that the number of complaints had dropped from 28 in the year (2011) prior to the introduction of cameras, to just 3 in the period after the introduction of BWVs. As the Farrar and Ariel note (2013 p.9) the overall reduction was so large that there were not enough complaints to conduct any meaningful analyses of the experimental and control groups. Of the 3 complaints made, 2 were for the group of officers who had cameras and 1 was for the control group. This also has to be balanced against a drop from 51 complaints in 2010 to 28 in 2011, prior to the introduction of BWV cameras. However, Farrar, one of the authors of the Rialto study (and also the police chief) has already commented that a larger, predominantly urban police force, such as New York Police Department, would face dramatically different challenges (Dillon, 2013). It is important, therefore, to look at the outcomes of other studies.

Other US studies, though less rigorous, do show similar reductions in complaints. The Mesa study of 50 officers (Rankin, 2013 pp.11-12) showed a reduction from 30, to 18 complaints in the year following BWV introduction. A similar scale study (56 officers) in Phoenix (Katz 2012; Katz, C. Kurtenbach, M & White M,



2013; Smart Policing Initiative Phoenix, 2013) showed a 44% decline in complaints against officers with BWV cameras, compared to only a 20% decrease in the control group.

In the UK, up to this point, only the two published BWV camera small scale studies have assessed complaints. The Home Office (2007) study in Plymouth showed that there were no complaints against officers wearing head cameras during the pilot, but the small numbers involved made the results tentative. Similarly, Fyfe's (2011) study of 38 devices in Renfrewshire and 18 devices in Aberdeen showed that only 7 complaints were made against officers and the video footage was used to prove these were unsubstantiated in all cases.

In sum, the available data, on a relatively large number of officers compared to existing studies, show a similar pattern on IoW as found in the previous US and UK research, ie, that the introduction of BWV cameras has been associated with a reduction in complaints against police officers. However, while promising, the area is currently under-researched and larger, robust studies are required in a greater number of locations to strengthen the evidence. Future research on complaints (and use of force too) needs better quality data and fieldwork to explore the link between BWV cameras potentially increasing officer self-awareness and a drop in complaints (see Ariel, Farrar and Sutherland, 2014).

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# Chapter 6: Human Factors Integration (HFI)

## Analysis of BWV Cameras on Isle of Wight

### Introduction

When used appropriately Human Factors Integration (HFI) can provide support and balance to the development of both technical and human aspects of equipment procurement, bringing further efficiencies and effectiveness in their application (MoD, 2000). It utilises the application of scientific knowledge about human characteristics to support the integration of novel technologies and systems, from the initial design phase, through to its use in practise (Stanton *et al.*, 2005). In this study, these techniques were used to establish users' perspectives on the use of BWV cameras in the field in order to help explain the results and possible inferences produced via the other methods used. This resulted in field data from observations, interviews and informal workshops which have been used to:

- Establish the expected requirements for the operational deployment of BWV cameras
- Identify the constraints on efficient BWV cameras
- Establish to what extent the requirements have been met by the implementation team on the Isle of Wight.

Furthermore, the outcomes are used to identify good practice and areas of coherence across its deployment and are used in this section to recommend further work to support improved integration into policing practice.

### HFI methods

The principle aim of HFI is to use an iterative process to assist in the integration of technologies and systems. From this perspective we needed to get as close to the users as possible and observe the use of the body worn video in practise, observing, and where appropriate, intervening to seek specific explanations of its application in the observed circumstance. It was established early on that the stages in body worn video use requiring attention included:

- User collection and activation of the BWV cameras
- Use of the camera in general operational support of police related activities
- Docking of the cameras and downloading of videos, including viewing and distribution of footage to support further investigations.

This user-centred perspective provided an overview of the principal tasks (see Figure 6.1). This was achieved through the following sequential approach:

- 3 semi-structured interviews with the lead officer for body worn video roll-out on the Isle of Wight.
- Observing 8 users across 3 separate shifts at Newport and Ryde stations, from start to finish
- Semi-structured discussions during the appropriate times within observations, highlighting the key aspects of body worn video deployment
- Final group discussions with the full shift group.

## User collection, activation, downloading and storage of BWV cameras

The process of BWV camera deployment on the Isle of Wight is summarised as a Hierarchical Task Analysis (HTA) in Figure 6.1. It outlines the system being analysed by using a hierarchy of goals, sub-goals, operations and plans. This flexible method provides a useful and simple representation of the relevant tasks and provides a useful framework to examine the intricacies of BWV camera use processes. The red text in Figure 6.1 articulates some of the constraints or associated issues reported by the IoW users. The HTA was therefore used to clearly define the tasks involved in the process and help the evaluators gain a clearer understanding of the tasks and associations relevant to the system.

The methods used established that the implementation team had refined the process and simplified it significantly using both quantitative and qualitative data from the users (Goodier, 2014), so that there was a workable system in place. Irrespective of this and as expected, the implementation team and users also identified areas where the system sometimes stalls for some individual users. These are also represented in Figure 6.1.

The use of the BWV device can be separated in four distinct phases of operation:

1. *Collecting the camera from the charging / docking bay:* switching the device on checking the date and that it was operating accordingly
2. *Attaching the device, and the robustness / ergonomics of the camera:* invariably worn on the on left side of the chest of the outer garment.
3. *Using the camera to record an incident:* travelling to/on arrival at an incident. Camera switched on by sliding function button. Audible beep, active light illuminates and front display screen then shows for thirty seconds. Function button is slid back after incident to switch off.
4. *Returning the camera to the docking station:* on completion of a shift, the camera is docked, data is downloaded and unit is re-charged.

As noted, many of the practical limitations of the BWV cameras had been ironed out on a limited scale trial prior to this evaluation (see Goodier, 2012), so that the more serious issues identified in the Essex domestic abuse study (Owens et al, 2014 p.19-20) were negligible. However, some difficulties with collection and activation of the BWV camera persisted, ie:

1. Loss of date and time
2. Physical damage
3. Users inadequately inspecting the device before going on duty
4. The BWV camera resetting the user identification.

Beyond this stage, the research showed that factors and issues prevalent in the storage and collection of the body worn video cameras were regularly addressed by the implementation team. This was essential to the successful implementation of personal issue BWV cameras, integrating them as seamlessly as possible into operational practice and was appreciated by users whose typical comments were:

*“It could not be any easier”*

*“It is a useful tool so why not?! It's a cultural change that takes some getting used to”*

*“I feel that it is a good way to protect the integrity of both officers and the public”.*

It is important that this level of intervention continues, but so far, it has focused mainly on: frontline relevance for users; hardware; and software integration. The users and the implementation team have, however, identified the need for *“further work making the video available on the network”*, which means that more attention is now needed for developing the ‘back office’ facility to allow all stakeholders involved in consequential investigations to view and incorporate the material more efficiently (this is discussed in more detail below).

As a result of the frontline focus, the feedback from operational officers was very positive, but this was not repeated for those taking over any post-incident investigation. When interviewing detective officers, they were largely sceptical about BWV cameras’ benefits because:

*“It had caused further complications for the processing of hand-over files”.*

This ties in directly with similar comments from investigative officers in the police officer survey (Goodier, 2014)

*“...in my experience the disadvantages have outweighed the advantages. I appreciate from the frontline officers’ perspective BWV is invaluable, but this is being let down by the officers’ use as a tool for the investigation”*

*“...the answer has to be when weighing the overall benefit of BWV against the extra work it produces in terms of viewing and editing it, it is of very little value and overall has a negative or no effect in the majority of cases”*

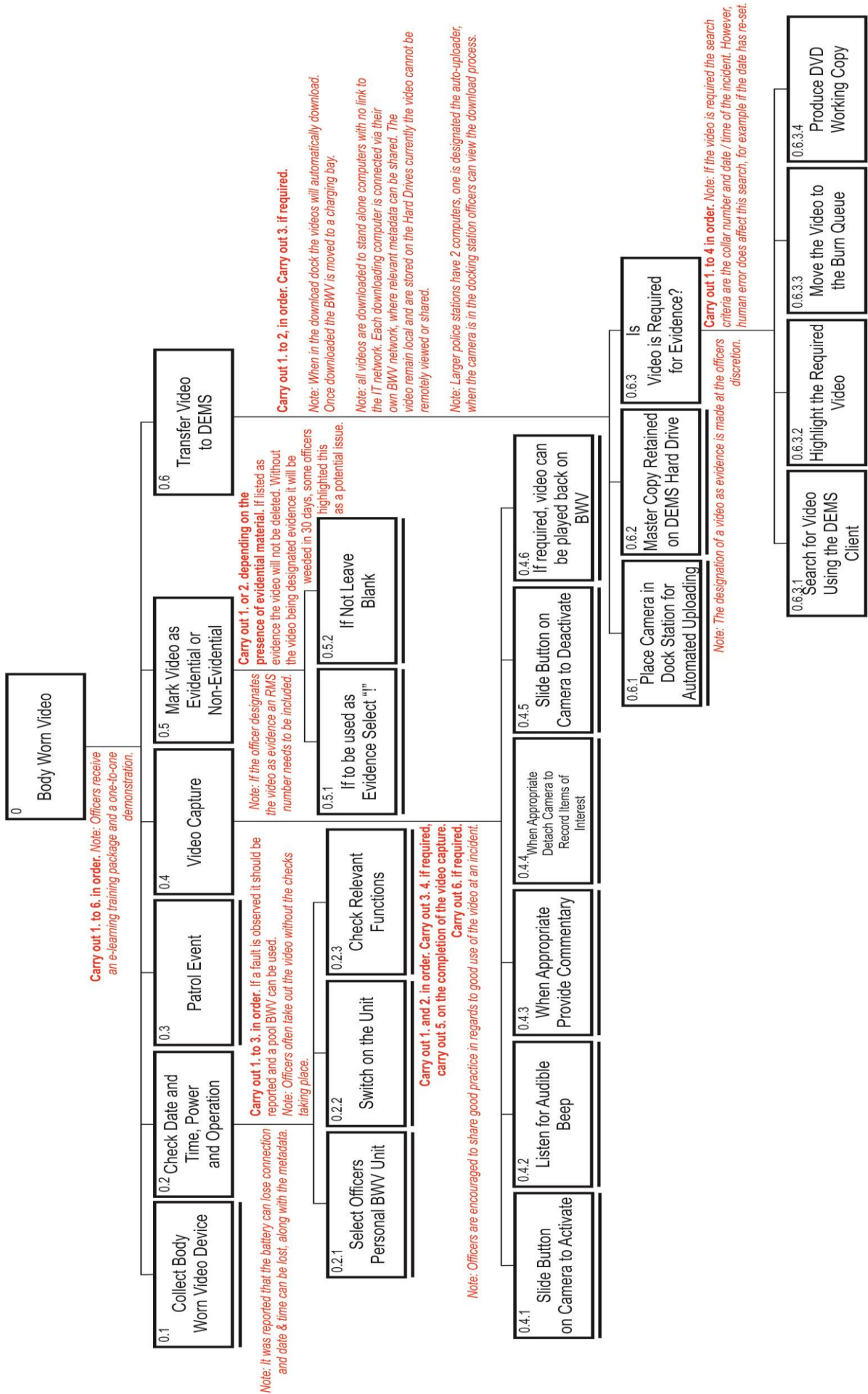
*“There is a feeling that BWV is the holy grail and this is a risk. It is one of the tools we have, by having total use we will create a monster, all footage we have is disclosable and we risk being swamped by BWV”*

This helps to explain the significant differences between frontline and non-frontline officers’ opinions about BWV cameras in the IoW officer survey<sup>46</sup>. It is clear that attention now needs to turn to considering the specific requirements of investigators once the camera is docked. Additional tasks have now evolved as a result of the use of BWV camera footage and these have effectively added to or ‘thickened’ the work of the investigators. This indicates that future research will require a broader, more holistic focus on the full set of processes from download to handover and beyond. This necessarily includes the tasks undertaken when processing the files and video after hand-over being incorporated into the HTA process. This also applies to the next stage of the data handling process for CPS and the courts. Indeed as Alison Saunders (2014), Director of Public Prosecutions, has already noted:

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<sup>46</sup> See chapter on this above for full detail.

*“one further emerging issue that I have picked up on during my current round of area visits is the provision to CPS staff of excessive video material, much of which has no immediate relevance to the prosecution in question. Lengthy recordings have been known to arrive without any indication as to what part of the recording should be viewed”.*



**Figure 6.1: Hierarchical Task Analysis of Body Worn Video use on the Isle of Wight (adapted from Shepherd, 2001)**

## Body worn video camera usage in context

When footage is processed, if it is categorised as containing useful evidence, it is saved. If it is not so categorised within 30 days, it is automatically deleted as non-evidence. In Time 2 of the study, when all loW officers were personally issued with BWV cameras, a total of 19,965 recordings were made. As Table 6.1 shows, the average recording length was 7.49 minutes. Of the total recordings, 22% (4,409) had been categorised as containing evidence resulting in 647 hrs of evidential footage being saved. The remaining 78% (15,556) included 1,214 recordings (6.1%) that were not initially categorised as containing evidence but were awaiting deletion after the 30 day limit. It is unknown whether any of these recordings were later saved as evidence. The average length of each evidential recording was 8.8 minutes, over 1 minute longer than the footage which was deleted as non-evidence.

**Table 6.1: Time 2 BWV use and specification**

Video Usage Status Description	Duration of recordings (hrs)	Number of recordings	Average recording time (mins)
Saved as Evidence	646.81	4,409	8.80
Non-Evidence - Awaiting 30 day Deletion	150.28	1,214	7.43
Deleted Non-Evidence	1,719.41	14,342	7.19
<b>Total:</b>	<b>2,519.76</b>	<b>19,965</b>	<b>7.49</b>

**Table 6.2: Time 2 BWV data size**

Video Usage Status Description	GB	Number of recordings	Average recording size (MB's)
Saved as Evidence	1,480	4409	344
Non-Evidence - Awaiting 30 day Deletion	344	1214	290
Deleted Non-Evidence	3,933	14342	281
<b>Total:</b>	<b>5,764</b>	<b>19,965</b>	<b>292</b>

The loW BWV cameras record in 1280 X 720p at a rate of 30 frames per second. In terms of data usage in Time 2, this equates to 5,764 GB of data and an average recording size of 292 MB. However, as Table 6.2 shows, 68.2% (3933 GB) of the data was deleted and 6% (344 GB) was awaiting deletion for non-evidence. Despite footage saved as evidence being, on average, 58 MB larger per recording, only 25.7% (1480 GB) of data was saved as evidence.

## Use of body worn video in operational support of police-related activities

The interviews and group discussions showed different users had varying interpretations of BWV camera use, especially in recording incidents. All frontline officers reported tangible benefits, but there were disparities in officer deployment of BWV cameras. Some users simply switched on the devices at the start of an incident and off at the end, with little thought about using the camera proactively. Others did identify the benefits of boosting the evidential value of the footage by providing a commentary (where relevant



and/or possible) and therefore, additional context. The superior quality of evidence collected through proactive camera use ties in well with the Essex domestic violence study (Owens et al, 2014 pp.16-17) which cites examples of officers taking off the camera or standing back to get better footage.

Some officers also ensured they were clearer than others in signalling to members of the public that they were about to use the BWV camera. These officers stressed the importance of how users deployed BWV cameras. If used well, they argued that BWV cameras could provide a better means to augment and benefit their working outcomes through reducing complaints, providing a first narrative that may offer clarity to the public and provide a valuable tool in managing and achieving best outcomes of associated evidence.

Officers said that BWV cameras, if deployed well: helped to reassure the public (and by association, themselves); could reduce time consuming on-going enquiries; and helped support any on-going investigative endeavours. It is therefore important to stress that all officers should be made aware of the need to consider all aspects of utility when deploying the cameras, not just the immediate frontline demand.

The following 3 case studies have, therefore, been selected to provide an overview of observed effective practice in different contexts. The first two relate to frontline occurrences that were identified as likely to be affected by BWV cameras, whilst the third relates to a 'live' burglary where the cameras have been used.

### **Case Study 1: incident of domestic violence**

During an observation period by the researcher, officers were called to a report of domestic violence. Based on their local knowledge, the officers reported that the occupants at the address were well known and the police had attended "*countless reports of domestic violence between the couple*". Each time the woman is taken to a safe place, but returns and the same events recur. On arrival, the woman victim was met at the gateway to the property by the first officer to arrive and the BWV camera was switched on in the driveway. The officer began speaking to the woman, gaining the 'first account' and also recording the injuries to her face on camera. As the other officers arrived, they spoke to the man who was still inside the premises, and effectively interviewed him using their BWV cameras. After these first accounts, the man was transported to Newport station and the woman was taken to a friend's address nearby. In line with previous experiences at this address, the woman made no further complaint and no further action was taken.

A few weeks later, the researcher was informed by the lead officer in the previous event that there had been a subsequent incident at the same address and that this time the woman had been very badly beaten and had received very serious injuries. The same procedure had been followed in which the BWV footage was used and the case was taken forward this time for prosecution. The BWV evidence contributed to the case, the man pleaded guilty and was given a custodial sentence.

### **Case Study 2: fight in a public place**

Whilst the researcher was accompanying 2 officers on foot patrol, they received a report of a man about to be ejected from a local nightclub for causing a disturbance. The officers met the man as he was leaving the

club and switched on their BWV cameras. The man began walking away, but was stopped by the officers and at first was quite aggressive. After one of the officers advised him that he was being recorded, the man became visibly calmer and the officer questioned him again. The event resulted in a warning and advice to the man to catch the next bus home. He then walked towards the bus station and the officers followed at a distance. The officers also requested that he was followed by the town CCTV system.

As soon as the man was out of sight, officers received notice that he was assaulting two passers-by, so they gave chase and apprehended him. A struggle ensued and more officers arrived and restrained the man who had now become violent. During the struggle, one officer was injured and the man also made several claims that the police were hurting him. Several bystanders also gathered and a small group of males began castigating the officers for their actions. The fact that all officers had their BWV cameras switched on provided corroborative information on the incident from start to finish and the actions can be seen first-hand from several perspectives. This will provide evidence to counteract any complaint, plus evidence for a conviction.

### Case Study 3: burglary

An officer was called to an alarm activation at a commercial property. On arrival he switched his BWV camera on and observed that the front window to the property had been broken. He began a descriptive narrative of his findings and commented on evidence observed outside the property. He is then called to another alarm activation nearby. On arrival, he observed another broken window, this time with a man inside the premises. Other officers then arrived and with the support of the dog handlers, the man was clearly instructed, on camera, to walk out of the shop. The BWV footage shows the intruder with items in his possession. The intruder was detained and an initial confession is made on camera. BWV footage was used to show the location of the two break-ins in relation to each other and evidence for the scene examination should it be required later.

These case studies demonstrate some of the operational benefits of body worn video and how some officers are integrating its application to augment their operational work. This observational and qualitative data helps to explain some of the mechanisms by which BWV cameras impact on practice and have contributed to the reductions in types of occurrences and crimes, or increased the conversion of DV assaults into recorded crimes.

However, as noted, although the potential operational benefits are apparent, team leaders reported that there are some disparities in officers' use of BWV cameras that reduce its effectiveness. While some officers have embraced the technology and use it to good effect, others do not. Data extracted from the Operation Hyperion BWV camera 'Scorecard' for the Isle of Wight shows that overall, in Time 2, Targeted Patrol Teams used the cameras on average 197 times. However, when broken down further, we found a significant<sup>47</sup> discrepancy between camera use in the East of the island (mean = 130) compared to in the West (mean = 263). This suggests that the impact on practice is significantly weaker in the area which does not have to project leader present, and the project leader concurs with this assessment. Similarly, when the IoW data are compared to the rest of Hampshire (where the project leader, by necessity, is rarely

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<sup>47</sup> IoW East ( $M = 130.400$ ,  $SD = 92.36188$ ) and IoW West ( $M = 262.5278$ ,  $SD = 187.06003$ ;  $t(51.425) = -3.789$ ,  $p = .000$ , two-tailed). (Effect size: small).

present), it shows that mean cameras use (132 per officer) is remarkably similar to the East of IoW. This further supports the need to develop the leadership role beyond a single police project leader. Good leadership will ensure that camera use becomes closer to being considered mandatory and the Mesa study in the US shows that when a mandatory use policy was dropped, the number of video files per month produced fell by 42% (Rankin, 2013 p. 10).

Tables 6.3 and 6.4 below further demonstrate that even within the East and West areas of IoW, there was still a large discrepancy in camera use between members of the same shifts in Time 2. For example, in the West of IoW, on the same duty rota, one officer has used the BWV camera 598 times, while another with an otherwise similar profile, had only used it 54 times in the same period. This again evidences differences in officer interpretation of when, and how, BWV is used in different circumstances. To maximise the observed benefits to practice, there needs to be the same level of officer awareness and utilisation of BWV for all opportunities and eventualities.

**Table 6.3: Discrepancies between 6 officers on the same shift from the East area of Isle of Wight in Time 2**

Crimes	People arrested	Intel	Street Encounters	EWS	BWV
7	13	2	7	69	105
19	21	10	10	115	190
33	14	5	0	15	39
24	21	5	6	53	236
16	12	4	3	23	91
13	6	7	3	37	82

**Table 6.4: Discrepancies between 6 officers on the same shift from the West area of Isle of Wight in Time 2**

Crimes	People arrested	Intel	Street Encounters	EWS	BWV
22	12	74	50	166	178
14	9	0	6	91	202
43	9	4	2	63	127
19	6	2	1	64	198
37	27	28	9	66	54
31	12	6	8	109	598

Officers interviewed also argued that reported that there was a need to share good practice so that there is coherence in the operational deployment of BWV cameras. One officer said *“we need to make sure everyone gets it and uses the body worn video in the best way and that this is shared with other officers”*. The body worn video implementation team have now put together a compilation of good practice examples which complements the training programme officers receive, and there is encouragement of officers to report on instances of good practice. This is available to officers and is used as a training aid. Evidently this method of sharing good practice feeds in to the iterative process of development and should

be encouraged to continue along with the ongoing and constant review of anomalous breakdowns in the system.

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# Major themes and suggestions for future action

A number of themes and suggestions for future attention by Hampshire police were identified by the evaluation. Outlined below are those that were agreed with Hampshire police and the internal and external reviewers.

- Public awareness of the use of BWV cameras on loW has risen, as has the level of trust in the police using them appropriately. It is also clear that, for the most part, police officers' views match those of the public in terms of where they think the cameras would most improve police performance. However, although the public's view significantly improved after the introduction of the cameras, both the police and public remained most sceptical about whether the cameras would impact on crime and ASB.
- However, when we were able to examine the types of occurrences and offences that frontline use of BWV cameras could be realistically expected to affect, especially low-level, high volume incidents of public order and anti-social behaviour identified by the expert groups, the results suggest that BWV cameras were relatively successful in reducing these, while occurrences and crimes that were not likely to be affected by the use of cameras changed very little, either on loW or in Hampshire generally.

## Action

- This indicates that evaluations can be refined and targeted at specific types of occurrences and crimes, and that information for the public can be developed that manages expectations based on frontline impact evidence.
- The findings of this project suggest that it is possible to isolate and measure frontline effectiveness of BWV cameras by focussing on specific occurrences and crime. It is also clear that this is a complex process due to the nature of storage, retrieval and sheer scale of matching required.

## Action

- Attention should be given to aligning administrative data systems with evaluation requirements more generally. This is not just an academic exercise. The alignment of these elements would be a major advance in assuring an evidence-based management system that could ensure more effective and deployment of resources.

## Action

- Rather than the current focus on limiting access to different databases or 'universes', it would provide much better management information if criminal justice data were merged with crime and occurrence data in the same system universe. This also potentially applies to CPS and court databases, so that full analysis of the types of cases that could be positively affected by BWV camera use could be carried out in the same way as for the domestic assault cases in this project.

## Action

- While complaints data may be subject to extra controls on access, it should also be possible to merge these data with existing databases. As a first step, there is a clear need to properly merge INFRA and Centurion data so that consistent information is available across all complaints and there is no double counting. The output of bespoke data analysis is also severely limited. It needs to be able to be outputted in Excel or other spread sheet formats, not plain pdf files, as is currently the case.
- It is also possible to isolate, and track over time, occurrences and crimes that are likely to be affected by a reduction due to BWV camera use, and those that are likely to increase as a result. Specifically, in relation to domestic assault, it is clear that the use of BWV cameras can have a positive impact on the number of domestic occurrences that were successfully converted into recorded crime and, indeed, on cases resulting in charges and successful prosecutions.

#### **Action**

- Future roll outs of BWV cameras should, as far as possible, be planned so that commencements are aligned with financial and data return periods (normally starting in April each year) so that the sheer level of matching and filtering data is reduced. It is also important that all crime data can be outputted according to the date and time of the original incident and not only the date of Home Office returns.

#### **Action**

- Databases should be enhanced by developing failsafe systems to identify whether cameras have been used in specific occurrences and crimes. In particular, Hampshire police's work on the 'Business Objects' that have been developed to produce more comprehensive 'scorecard' data on camera use should enable these data to be matched with occurrences, crime and criminal justice databases. This will produce a more sophisticated ability to match similar cases where cameras have and have not been used and assess differences in outcome. It will also allow easy retrieval of relevant footage for identification of effective practice training.
- National policy initiatives are already examining the potential to use BWV footage as primary evidence. Based on these results, it is clear that this is likely to impact beneficially on guilty pleas/verdicts. However, it is also clear that cameras can be used more or less effectively.

#### **Action**

- There is, therefore, a need for officer training in the proactive use of BWV cameras and the use of additional camera functions to provide better value evidence.
- There is a need to address additional requirements, and training, for investigative officers who pick up the cases after the initial footage has been captured. This needs to focus on improving efficiency and effectiveness of: review; analysis; storage and presentation facilities. This is also likely to apply to associated administrative staff and to CPS and court staff.
- There is a need to carry out cost benefit analyses of future evaluations once data systems are able to provide the appropriate information as a matter of routine.

# APPENDICES

**APPENDIX 1: The Sample Profile for IoW public survey**

**APPENDIX 2: Sampling and weighting for IoW police officer survey**

**APPENDIX 3: Note on lack of comparability of complaints categories over time**

**APPENDIX 4: IOW Public Opinion Survey**





## APPENDIX 1: The Sample Profile for IoW Public Survey

After excluding responses with missing demographic data and those that were under the age of 15, the final sample size for the public opinion survey was 2,071. The original numbers and exclusions for time 1 and 2 are as follows:

### Time 1

- 1,010 responses
- 17 excluded for poor quality or missing data
- 2 excluded because too young
- 991 total valid responses

### Time 2

- 1,108 responses
- 27 excluded for poor quality or missing data
- 1 excluded because too young
- 1,080 total valid responses

### Sample Weighting

The sample of 2071 respondents was weighted using figures from the IoW Council Business Effectiveness Unit 2011. This provides age and gender figures for three age groups: 0-14; 15-64; 65+. However, due to small numbers, the 0-14 category had to be excluded. The population proportions were calculated for the remaining category which is best observed in Table A1.1.

**Table A1.1: Required sample proportions**

	IoW %			Sample n required of 2071		
	15-64	65>	Total	15-64	65>	Total
Male	35.4	12.8	48.2	733	265	998
Female	35.8	16.0	51.8	741	331	1073
Total	71.2	28.8	100	1475	596	2071

Table A1.2 shows the actual observed sample size and Table A1.3 shows the difference between the observed numbers in each in each category and the numbers required in order to for the sample to represent the age and gender demographics of the Isle of Wight.

**Table A1.2: Observed sample proportions**

Sample originals n			
	15-64	65>	Total
Male	622	261	883
Female	968	220	1188
Total	1590	481	2071

**Table A1.3: Difference to be accounted for**

Difference		
	15-64	65>
Male	111	4
Female	-227	111

The above tables show that the sample underrepresents males in both aged categories and females aged 65>. The most concerning difference is for females aged 15-64 which the sample over represents by 10.9%.

In order to make the sample representative a simple case by case, proportional weight (x) has been applied to the data. A proportional weight has been used because it allows the proportion of respondents to be accurately reflected in the data without altering the sample size. The alternative, inflationary, scale weight is used to increase the sample size to match the population of the IoW. This would require such heavy weighting (beyond the recommended  $x = 2$ ) that small insignificant group effects would be exaggerated in the analysis. For this reason, only a proportional weight has been applied to the data (Acton, Miller, Maltby and Fullerton 2009; Maletta 2007)

**Table A1.4: x applied per category**

	X (n+1)	
	15-64	65>
Male	<b>1.179</b>	<b>1.016</b>
Female	<b>0.766</b>	<b>1.506</b>

Table A1.4 shows the value of x applied to each category in order to make them representative. Of note is the deflationary weight ( $x = 0.766$ ) applied to females aged 15-64. This deflationary weight does not mean that 277 cases have been excluded. Rather, that the value of each of the 968 female respondents aged 15-64 has been reduced and factored into any subsequent analysis.

When applied to SPSS and a frequency test run, Table A1.5 is produced. You will notice that all the age / gender categories equate to the correct proportions, as per the plan based on the IoW population stats shown in Table A1.1.

**Table A1.5: New Sample proportions confirmed in SPSS**

Population group age and gender

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male 15-64	733	35.4	35.4	35.4
	Male 65+	265	12.8	12.8	48.2
	Female 15-64	741	35.8	35.8	84.0
	Female 65+	331	16.0	16.0	100.0
	Total	2071	100.0	100.0	

**Table A1.6: Unweighted and weighted samples' key characteristics**

	Unweighted	Weighted	Difference
Men (%)	43	48	+5
Women (%)	57	52	-5
Average age	52	54	+2
Ethnicity (% Valid White)	99	99	0

The main correction effected by the weighting is the 5% gender imbalance in the survey respondents, but it is encouraging that the impact of this on age and ethnicity is minor, suggesting that the original convenience sample provided a good spread of respondents (see Table A1.6).

The proportions of participants for each collection method are shown below in Table A1.7, indicating that the collection method produced a similar profile to the IoW population as a whole even prior to weighting.

**Table A1.7: Respondents by data collection method**

Collection Method	Time 1		Time 2		Combined	
	Unweighted	Weighted	Unweighted	Weighted	Unweighted	Weighted
Online survey %	76.4	75.4	74.6	72.1	75.5	73.7
Officer / PCSO %	16.2	16.4	11.9	12.9	14	14.6
County Press %	7.4	8.2	13.5	15	10.6	11.7

The three different collection methods' relative proportions are comparable, with approximately three-quarters of the sample generated through the on-line survey. There is consistent slight reduction in online responses for the weighted data, indicating that the majority of females aged 15-64 responded through the online survey rather than analogue survey methods.

**Table A1.8: Respondents by post code**

Post Code PO...	N	%	Compass Bearing East or West
<b>30</b>	542	26.2	West
<b>33</b>	415	20.0	East
<b>36</b>	263	12.7	East
<b>31</b>	214	10.3	West
<b>38</b>	203	9.8	East and West
<b>37</b>	115	5.5	East
<b>32</b>	97	4.7	East
<b>40</b>	85	4.1	West
<b>35</b>	56	2.7	East
<b>41</b>	41	2.0	West
<b>34</b>	22	1.1	East
<b>39</b>	19	.9	West

Table A1.8 shows that the majority of responses came from respondents living in cities such as Newport (PO30, N=542, 26.2%) and Ryde (PO33, N=415, 20%). Just over half (52%) of responses came from the East side of the island (includes half of the responses from PO38 which straddles the East-West divide).

Table A1.9 shows the means by which respondents were made aware of BWV, for those that were aware, at times 1 and 2. Chi-square tests for independence (with Yates Continuity Correction) indicated a significant association between time and how many people were made aware through the following channels: Media (TV, newspapers etc.),  $\chi^2 (1, n=876) = 10.493, p = .001, \phi = -.112$  (small); Online media,  $\chi^2 (1, n=875) = 4.737, p = .030, \phi = -.078$  (very small).

**Table A1.9: Ways the public were made aware by time 1 and time 2**

Aware through...	Time 1		Time 2		Sig Y/N
	N	%	N	%	
<b>Media (TV, newspaper etc)</b>	78	30.7 (n=254)	266	42.8 (n=622)	<b>√</b>
<b>Word of mouth</b>	53	18.3 (n=290)	140	22.5 (n=622)	x
<b>Business or organisational membership</b>	29	11.4 (n=254)	73	11.8 (n=621)	x
<b>Online media</b>	10	3.9 (n=254)	52	8.4 (n=621)	<b>√</b>
<b>Other</b>	6	2.4 (n=254)	14	2.3 (n=622)	x



## APPENDIX 2: Sampling and Weighting for IoW Police Officer Survey

There were sample of 135 respondents was weighted using figures provided by Hampshire Constabulary. This provides gender and rank figures. Due to missing information 4 respondents had to be excluded. The sample proportions were calculated as outlined in the tables below.

**Table A2.1**

IoW %						Sample n required of 194				
	INS	PC	PS	PCSO	Total	INS	PC	PS	PCSO	Total
Male	2.58	45.88	10.82	8.25	67.5	7.0	89.0	21	16	133
Female	1.03	22.68	2.58	6.19	32.5		44.0	5	12	61
Total	3.6	68.6	13.4	14.4	100.0	7.0	133.0	26.0	28.0	194.0

Table A2.1 shows the actual observed sample size and Tables A2.2 and A2.3 show the difference between the observed numbers in each in each category and the numbers required in order to for the sample to represent the gender and rank in the Isle of Wight Police.

**Table A2.2**

Sample originals n					
	INS	PC	PS	PCSO	Total
Male	5	62	17	12	96.0
Female	0	21	3	11	35.0
Total	5.0	83.0	20.0	23.0	131.0

**Table A2.3**

Difference				
	INS	PC	PS	PCSO
Male	2	27	4	4
Female	0	23	2	1

The Tables show that the sample underrepresents males and females in all ranks. The most concerning difference is for male and female Police Constables.

In order to make the sample representative a simple case by case, a proportional and inflationary weight ( $x$ ) has been applied to the data. A proportional weight has been used because it allows the proportion of respondents to be accurately reflected and inflationary, scale weight is used to increase the sample size to match the Police population of the IoW (Acton, Miller, Maltby and Fullerton 2009; Maletta 2007)

**Table A2.4**

X (n+1)				
	INS	PC	PS	PCSO
Male	1.40	1.435	1.235	1.333
Female		2.095	1.667	1.091

Table A2.4 shows the value of  $x$  applied to each category in order to make them representative. Of note is the weight ( $x = 1.40$ ) applied to INSPECTORS. Due to no respondents being female from the Inspector category, the data could not account for the desired 2 females in this category. Rather this entire category is comprised of males.

When applied to SPSS and a frequency test run, Table A2.5 is produced. All the rank / gender categories equate to the correct proportions, as per the plan based on the IoW police 'population' statistics.

**Table A2.5 Gender \* Rank or Grade Crosstabulation**

			Rank or Grade				Total
			INSP	PC	PCSO	PS	
Gender	Male	Count	7	89	16	21	133
		% within Gender	5.3%	66.9%	12.0%	15.8%	100.0%
		% within Rank or Grade	100.0%	66.9%	57.1%	80.8%	68.6%
		% of Total	3.6%	45.9%	8.2%	10.8%	68.6%
	Female	Count	0	44	12	5	61
		% within Gender	0.0%	72.1%	19.7%	8.2%	100.0%
		% within Rank or Grade	0.0%	33.1%	42.9%	19.2%	31.4%
		% of Total	0.0%	22.7%	6.2%	2.6%	31.4%
Total	Count	7	133	28	26	194	
	% within Gender	3.6%	68.6%	14.4%	13.4%	100.0%	
	% within Rank or Grade	100.0%	100.0%	100.0%	100.0%	100.0%	
	% of Total	3.6%	68.6%	14.4%	13.4%	100.0%	

### **APPENDIX 3: Note on Lack of Comparability of Complaints Categories Over Time**

The INFRA data was initially only set up to report back information relating to Time 1. The database only identified meta data relating to '2 OCU'. During the period of Time 2, the Isle of Wight changed from its meta data tag of 2 OCU to the 'Isle of Wight' division. After many months, the business object universe was reconfigured to report back on the Isle of Wight division.

As a result of this change the business objects report looked different between T1 and T2, questioning the reliability of the 2 datasets for comparison.

For example, one output report gave the total for T2 as 295 dissatisfaction reports. The remaining 4 output reports used, from the business objects database for T2, reported a total dissatisfaction of 263. It is unclear why the INFRA database is reporting a reduction of 32. A possibility is that the T2 report is combining both dissatisfaction and congratulations into one figure.

There is also a problem with combining dissatisfaction type between T1 and T2. It would appear that at the same time the geographical location names changed, there were other significant changes to the infra database. For instance, the dissatisfaction categories changed between T1 and T2 from 22 categories to 17. This makes it difficult to compare one year's dissatisfaction type compared to the other.

The output report on 'closure by reason' is also different between T1 and T2, with T2 having an additional category added. Some category names were also changed between the period between T1 and T2, making it impossible to compare each category type.

The one category that did remain the same was, CD1 recorded. These were the dissatisfactions recorded on infra which were upgraded to full PSD investigations. (21 in T1 & 14 in T2). The Centurion database does not record how many complaints originated from the infra database





## APPENDIX 4: IOW Public Opinion Survey



Institute of  
Criminal Justice  
Studies



### **We want your opinion on police use of body worn video cameras...**

The University of Portsmouth's Institute of Criminal Justice Studies (ICJS) is carrying out an evaluation on behalf of IoW Police, of public opinion regarding the police use of body worn video cameras on the Isle of Wight.

If you are an Isle of Wight resident, we would really appreciate it if you could complete this very short questionnaire, which will only take 3 – 5 minutes.

Please note that all responses are anonymous and the results will be analysed independently by researchers at ICJS.

This questionnaire is limited to one response per person.

If you have any ethical / security concerns about how your responses will be used, please contact [craig.jenkins@port.ac.uk](mailto:craig.jenkins@port.ac.uk)



# Police Body Worn Video Cameras – An Isle of Wight Community Survey



A body worn video camera is a small portable video camera mounted on uniformed Police Officers' clothing. When an incident occurs, the Police Officer turns on the camera to record what happens. If you are an **Isle of Wight resident**, please answer the following questions on police body worn video cameras.

**1. What does your Isle of Wight post code start with?**

PO30  PO31  PO32  PO33  PO34  PO35   
 PO36  PO37  PO38  PO39  PO40  PO41

**2. Are you?**

Female  Male

**3. How old are you? (in years, e.g. 57)**

**4. Your ethnic background is?**

White  Mixed  Asian  Black  Other (specify)

**5. Are you aware that Police Officers in your area use body worn video cameras & how?**

Yes, I'm aware  **PLEASE SPECIFY HOW YOU WERE MADE AWARE (e.g. word of mouth, internet, TV)**  
 No, I had no idea

**6. Have you noticed a Police Officer in your area wearing a body worn video camera while on duty?**

Yes, I have  No, I haven't

**7. Have you EVER been involved in an incident on the ISLE OF WIGHT, where a body worn video camera was used?**

Yes, I have  No, I haven't

**8. On a scale of 1 - 6, how much do you trust Police Officers to record ALL APPROPRIATE incidents on their body worn video cameras? (please circle a number on the scale below)**

Max distrust 1 2 3 4 5 6 Max trust

**9. Do you think that body worn video camera can help the police in your area do the following:**

	Yes, cameras will help	No, cameras won't help
Gather evidence?	<input type="checkbox"/>	<input type="checkbox"/>
Identify criminals?	<input type="checkbox"/>	<input type="checkbox"/>
Increase the likelihood of conviction?	<input type="checkbox"/>	<input type="checkbox"/>
Reduce complaints against Police Officers?	<input type="checkbox"/>	<input type="checkbox"/>
Reduce assaults on Police Officers?	<input type="checkbox"/>	<input type="checkbox"/>
Reduce crime & anti-social behaviour?	<input type="checkbox"/>	<input type="checkbox"/>
Improve training for new recruits?	<input type="checkbox"/>	<input type="checkbox"/>
Improve disciplinary procedures for Police Officers?	<input type="checkbox"/>	<input type="checkbox"/>

**10. Should ALL UNIFORMED Police Officers have to wear a body worn video camera while on duty?**

Yes, they should  No, they shouldn't

**11. Do you have any other thoughts on police using body worn video cameras? (please specify below)**