

**WESTERN AUSTRALIA POLICE
BODY WORN VIDEO EXPERIMENT
Crim-PORT 1.0:**

Criminological Protocol for Operating Randomized Trials
© 2009 by Lawrence W. Sherman and Heather Strang

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1. NAME AND HYPOTHESES

1.1 Name of experiment:

The Western Australia Police Body Worn Video Experiment

1.2 Principal Investigator:

Name - Senior Sergeant Roy Newland

Employer – Western Australia Police - Evidence Based Policing Division

1.3 Co-Principal Investigator

Name - Detective Sergeant Paul Thornton

Employer – Western Australia Police - Evidence Based Policing Division

Name – Senior Analyst Paul House

Employer – Western Australia Police – Evidence Based Policing Division

1.4 General Hypothesis:

The assignment of body-worn video cameras (BWVs) to be worn by all operational officers assigned to an area in a 24-hour period will result in police service efficiencies in comparison to 24-hour periods where none of the operational officers are assigned to wear BWVs.

1.5 Specific Hypotheses:

1.5.1

- i. Days in which officers are assigned BWVs ('BWV days' or 'treatment days') and mobile telephones for audio recording will show reduced cost and time spent taking interviews by participating police officers, compared to interviews taken during a control group of non-BWV days (control days).
- ii. BWV days will show increased rates of pleas of guilty per 100 charges, compared to control days.
- iii. BWV days will show more rapid pleas of guilty, compared to control days
- iv. BWV days will show increased rates of conviction (regardless of whether the defendant entered a guilty plea) per 100 charges, compared to control group days
- v. BWV days will show increased rates of sanction (including criminal charge, caution, infringement, Police order or referral to a Juvenile Justice Team) per 100 encounters with the public
- vi. BWV days will show increased rates of criminal charges per 100 recorded incidents (IMS Incident Reports), compared to control group days.

1.5.2

In addition, the following hypotheses will be assessed in a descriptive, exploratory study – it is not expected that enough incidents will occur to allow sufficient statistical power to be tested:

- a. BWV days will show a decrease in Police use of force incidents per 100 police encounters with the public, compared to control group days.
- b. BWV days will show decreased incidents of assault against Police per 100 police encounters with the public, compared to control group days.

- c. BWV days will show decreased public complaints per 100 police encounters with the public compared to control group days.

1.6 List all variations of outcome measures to be tested.

- i. The time spent by officers conducting an interview as per current practice will be measured through start and finish times recorded in the WA Police Incident Management System (IMS). This information is recorded by the officer conducting the interview.
- ii. The time required to record an interview using BWV/a mobile telephone linked to the BWV platform will be measured through start and finish times recorded by the officer conducting the interview either using current Police systems, and/or through review of metadata recorded in the BWV storage platform (dependent on the functionality of the BWV system selected by WA Police).
- iii. The total number of Police encounters with members of the public is not currently recorded in WA Police systems. A consistent, albeit incomplete, proxy measure of encounters between police and the public will be achieved through measuring Computer Aided Dispatch (CAD) activity, IMS activity and where possible manual officer activity returns.
- iv. Use of force and complaints data will be sourced from Professional Standards (PS) Portfolio data holdings. Variations between the treatment and control groups will be measured by searching the agency-wide data for the regimentals of the officers in the experiment and the dates/times when incidents in the PS data were alleged to have occurred, with each date being coded against the record of control and experimental dates.
- v. Assaults against Police will be sourced from IMS and Briefcase. Variations between the treatment and control groups will be measured by identifying the names of assaulted officers in cross-reference to the names of officers in the experiment, as well as the dates/times of the assaults cross-referenced against the record of control and experimental dates.
- vi. Total numbers of sanctions and charges will be sourced from IMS and Briefcase by identifying incidents allocated to work units participating in the experiment, cross-referenced by date and time of occurrence against the record of control and experimental dates. .
- vii. Judicial outcomes of charges will be tracked in terms the appearance number at which a guilty plea is entered, and the final outcome of the case. Cases will be identified by reference to the incidents identified above, and further cross-referenced against the record of control and experimental dates.

1.7 List all subgroups to be tested for all varieties of outcome measures (of both officers and third-parties):

- i. Officer location (by Metropolitan/Regional location, see 4.1.2)
- ii. Unit type, distinguishing between units whose tasking primarily originates from the Police Operations Centre (response teams), Local policing Teams (LPTs) mainly engaged in post-incident investigation, and units whose tasking is significantly self-generated – see 4.1.2
- iii. Offence type (for length of interviews and rate of sanction)

- iv. Offender demographics including age, ethnicity and gender (divided into groups of at least 50)
- v. Police officer years of experience (divided into groups of at least 50)

2. ORGANISATIONAL FRAMEWORK

2.1 Single Partnership: Operating agency provides random assignment, delivers treatments and analysis of results, with advice from Cambridge Centre for Evidence Based Policing.

2.1.1 Name of Operating Agency: Western Australia Police (WA Police)

3. UNIT OF ANALYSIS

Days of the year will be randomly designated as treatment or control days. All participating officers commencing a shift on a particular day will adhere to Treatment or Control conditions. The shift start and finish times of participating Units mean that BWV 'treatment' will cover 0600 hours until 0700 hours the next day. As noted above (s1.6) criminal incidents extracted from WA Police systems are recorded with both a date and time, allowing attribution as either treatment or control.

3.1 Sample Size

The treatment and control days will be randomly assigned in block for each location - Bunbury and Perth. For a six month trial the sample size is 183 days at each location.

3.2 Confidence Level

A two-tailed, 95% significance level experiment, with 80% power, running for 183 days, calculated with equal proportions has the potential to detect an effect size of 0.2931

4. ELIGIBILITY CRITERIA

4.1 Criteria Required (list all)

- i. All days within the nominated date range are eligible as cases within the trial.
- ii. The following persons will be eligible to participate in the trial:

Uniformed front-line police officers assigned to the following units:

- Bunbury Police Station (South West District, Regional WA)
- Perth Local Policing Teams (LPTs) and Central Metropolitan (Metro) Response Team - West (who work across the Central Metropolitan District, Metropolitan WA)
- Regional Operations Group officers assigned to Perth sub-District, Central Metropolitan District.
- Mounted Unit officers assigned to Perth sub-District.

4.2 Criteria for Exclusion (list all)

- i. A case (a day) would only be excluded if the opportunity for treatment delivery was unacceptably low due to exceptional circumstances (such as mass re-allocation of officers to a major incident outside the study area).
- ii. BWV footage is not to be recorded under the following criteria:
 - In private premises where the occupant refuses permissions to record (outside legislatively authorised circumstances);

¹ <http://www.sample-size.net/means-effect-size/>

- Interview of suspect/POI beyond recording voluntary/spontaneous statements;
- Lengthy or extensive interviews in police custody (e.g., child abuse reports, sexual assault reports);
- Situations where activating the device will present safety risks;
- Circumstances where the recording is in breach of legislative requirements, or constitutes trespass;
- Incidents which are deemed to be of a sensitive nature, requiring the officer to exercise appropriate discretion; and
- A BWV is not to be used as a covert recording device.

5. PIPELINE: RECRUITMENT OR EXTRACTION OF CASES (ANSWER ALL QUESTIONS)

5.1 Where will cases come from?

Every day within the nominated date range for the trial will become a case, randomised to treatment or control status (see 7).

5.2 Who will obtain them?

WA Police Evidence Based Policing Division (EBP)

5.3 How will they be identified?

EBP

5.4 How will each case be screened for eligibility?

EBP will screen cases for eligibility.

5.5 Who will register the case identifiers prior to random assignment?

EBP

5.6 What social relationships must be maintained to keep cases coming?

- i. Relationship between EBP Project Team and:
 - a. WA Police hierarchy, including EBP Steering Group and Commissioner of Police;
 - b. Officers in Charge (OICs) and supervising officers in target work units;
 - c. Other WA Police Units, including Professional Standards Unit, Business Intelligence Office (BIO), Police Media and Prosecuting Unit;
 - d. WA Police BWV Working Group/s;
 - e. Cambridge Centre for Evidence Based Policing; and
 - f. External stakeholders including the Police Union of WA, Minister for Police, judiciary and media.
- ii. Relationship between supervisors and participating officers.

5.7 Has a Phase I (no-control, “dry-run”) test of the pipeline and treatment process been conducted?

It is currently anticipated that a two week dry-run test will be conducted immediately prior to the trial commencing.

5.7.1 How many cases were attempted to be treated?

The dry run will treat at least 10 cases (days) in each of the two locations (Perth and Bunbury)²

5.7.2 How many treatments were successfully delivered?

To be advised

5.7.3 How many cases were lost during treatment delivery?

To be advised

6. TIMING: CASES COME INTO THE EXPERIMENT IN (CHECK ONLY ONE):

6.1 A trickle-flow process, one day at a time

7. RANDOM ASSIGNMENT

7.1 How is random assignment sequence to be generated?

7.1.1 A **random numbers table** has been generated in Excel, with treatment days assigned as per this table. An example is attached at Annex A. Randomisation for the entire trial period will occur at the start of the trial period.

7.2 Who is entitled to issue random assignments of treatments?

7.2.1 Role: EBP Project Lead or nominated member of the EBP BWV project team.

The condition of each day (treatment or control) will be disseminated electronically to participating officers just after midnight each morning.

The random sequence of control and treatment days will be locked down to EBP folders, accessible only to the project team, and the status of future days will not be released in advance under any circumstances.

7.2.2 Organisation: WA Police - EBP

7.3 How will random assignments be recorded in relation to case registration?

7.3.1 Name of data base: WA Police

7.3.2 Location of data entry: EBP

7.3.3 Persons performing data entry: WA Police EBP analytical team.

8. TREATMENT AND COMPARISON ELEMENTS

8.1 Experimental or Primary Treatment

8.1.1 What elements *must* happen, with dosage level (if measured) indicated.

- i. Officers must have access to an email notification system which provides direction as to whether each work day is a treatment or control day
- ii. BWVs must be attached to each participating officer on treatment days
- iii. Each BWV must have the capability of capturing and recording police interaction with the public in both video and audio
- iv. BWV content must be downloaded to the appropriate platform at the end of each officer's shift
- v. Appropriate metadata must be recorded by each officer for each BWV data file, and this metadata must be accessible to the project team

² It is proposed that the trial phase also include 'control' days to monitor treatment compliance

- vi. As far as possible, all public encounters must be logged
- vii. Start and finish times must be recorded for each interview recorded by participating officers
- viii. On treatment days BWVs must be turned on and recording during every incident requiring police attention, until the situation is resolved (see 4.2 for exclusions).
- ix. Officers must record the existence of BWV footage in appropriate Police and Court systems (policies to be developed by EBP)

8.1.2 What elements *must not* happen, with dosage level (if measured) indicated.

- i. The randomised treatment/control status of any day must not be released prior to the scheduled notification time.

8.2 Control or Secondary Comparison Treatment

8.2.1 What elements *must* happen, with dosage level (if measured) indicated.

- i. Officers must have access to a notification system which defines each work day as a treatment or control day
- ii. Interview start and finish times must be recorded in IMS
- iii. As far as possible, all public encounters must be logged

8.2.2 What elements *must not* happen, with dosage level (if measured) indicated.

- i. Officers must not wear or utilise BWV or personal video recorders of any kind
- ii. The randomised treatment/control status of any day must not be released prior to the scheduled notification time.

9. MEASURING AND MANAGING TREATMENTS

9.1 Measuring (see Appendix A)

9.1.1 How will treatments be measured?

Treatment will be measured through the interrogation of BWV software and BWV activity compared with the randomised schedule of treatment and control days.

Treatment compliance levels will be assessed by comparing (dependent on BWV platform capabilities) the number of files recorded by officers and/or the percent of shift time recorded by officers with the number of CAD tasks attended and IMS incidents created by that officer.

Adherence to control conditions will be assessed by reviewing any data files uploaded to the BWV platform on control days.

Treatment measurement will occur on a daily basis during the dry-run phase. Dependent on the level of compliance recorded during the dry run phase, treatment measurement will occur on a daily or weekly basis at the commencement of the trial with the capacity to revert to fortnightly or monthly assessments later in the trial.

9.1.2 Who will measure them?

EBP analytical team and project team will measure treatment compliance.

9.1.3 How will data be collected?

Incidents and tasks attended by officers will be gathered from Police systems including Incident Management System (IMS), CAD and shift rosters (to identify officers on shift).

Additional officer 'encounters' with the public will be collected through manual officer activity returns.

Treatment data will be collected through BWV software and project team spreadsheets.

9.1.4 How will data be stored?

Computer files will be stored as per business rules for the selected BWV software; other data extracts will be stored locally by the project team within secure server folders

9.1.5 Will data be audited?

Yes, where necessary.

9.1.6 If audited, who will do it?

Locally stored data may be audited by the project lead, analytical team and other external bodies – Internal Affairs, Corruption and Crime Commission, or other bodies in accordance with BWV administrator rights. Auditing may also occur by a third party nominated by the project director

9.1.7 How will data collection reliability be estimated?

Through random dip sampling and qualitative responses from participating officers/supervisors as to the accuracy of the treatment measurement (see 9.2.1)

9.1.8 Will data collection vary by treatment type?

No. Treatment is identical in all cases.

9.2 Managing

9.2.1 Who will see the treatment measurement data?

EBP analytical and Project Team, and any officer with Administrator level access to the BWV platform.

9.2.2 How often will treatment measures be circulated to key leaders?

On an as needs basis.

9.2.3 If treatment integrity is challenged, whose responsibility is correction?

Project Lead will take responsibility to address treatment compliance issues

10. MEASURING AND MONITORING OUTCOMES

10.1 Measuring

10.1.1 How will outcomes be measured?

Primary hypothesis:

- i. Minutes per day devoted to taking interviews

Secondary hypotheses:

- ii. Prevalence of Guilty pleas per hundred charges
- iii. Average number of appearances before entering a plea of Guilty
- iv. Prevalence of conviction per 100 charges

- v. Prevalence of sanctions per 100 police encounters with the public, and/or per 100 criminal incidents
- vi. Police use of force incidents per 100 police encounters with the public
- vii. Incidents of assault against Police per 100 police encounters with the public
- viii. Public complaints per 100 police encounters with the public

10.1.2 Who will measure them?

EBP analytical team.

10.1.3 How will data be collected?

Data from CAD, IMS, Custody and briefcase will be extracted and provided to EBP on a weekly basis by BIO.

Data from other internal systems (e.g. IAPro), which will be used in exploratory studies, will be requested as required from other WA Police units.

10.1.4 How will data be stored?

Files containing data from police systems will be stored within EBP's secure local drive. Data files received from BIO will be stored in the 'original data' reference folder, with working copies created as required.

BWV data will be stored in accordance with the business rules of the selected provider.

10.1.5 Will data be audited?

Yes, if deemed necessary.

10.1.6 If audited, who will do it?

By a third party nominated by the project director.

10.1.7 How will data collection reliability be estimated?

See 9.1.7.

10.1.8 Will data collection vary by treatment type?

No.

10.2 Monitoring

10.2.1 How often will outcome data be monitored?

Outcome data will be monitored on a monthly basis.

10.2.2 Who will see the outcome monitoring data?

The EBP BWV Analytical and Project Team, and where necessary the EBP Safety Committee, namely Deputy Commissioner BROWN, Assistant Commissioner ZANETTI and Superintendent O'ROURKE.

10.2.3 When will outcome measures be circulated to key leaders?

Outcomes will be measured and circulated outside the project team only following the conclusion of the trial (with the exception of 10.2.4 below).

10.2.4 If experiment finds early significant differences, what procedure is to be followed?

Significant early analytical findings may result in internal briefings from the project team to the EBP Safety Committee.

11. ANALYSIS PLAN

11.1 Which outcome measure is considered to be the primary indicator of a difference between experimental treatment and comparison group?

See 10.1.

11.2 Which outcome measure is considered to be the secondary indicator of a difference between experimental treatment and control group?

See 10.1

11.3 What is the minimum sample size to be used to analyse outcomes?

The agreed project duration is 183 days (6 months) at each of the Metro site (Perth based units) and Regional site (Bunbury Police station).

11.4 Will all analyses employ an intention-to-treat framework?

Yes.

11.5 What is the threshold below which the percent Treatment-as-Delivered would be so low as to bar any analysis of outcomes?

Any more than 20% of participating officers wearing BWVs on control days; any less than 80% of participating officers wearing BWV on treatment days.

11.6 Who will do the data analysis?

The EBP data analytics team.

11.7 What statistic will be used to estimate effect size?

Standardized mean difference (Cohen's D) will be used to assess the difference between mean times of interview on treatment and control days.

11.8 What statistic will be used to calculate P values?

T test

11.9 What is the magnitude of effect needed for a two-tailed, $p = .05$ difference to have an 80% chance of detection with the projected sample size (optional but recommended calculation of power curve) for the primary outcome measure (at allocation ratio between the arms of 1:1)

$d = 0.293$ (See Appendix B for power calculations)

11.10 Will any additional analyses be conducted?

- i. Cost benefit analysis
- ii. Evaluation of qualitative stakeholder feedback, including participating officers' experience using BWV, reports from supervisors, judicial response to BWV evidence, media coverage of the BWV project and responses from other identified stakeholders.

12. DISSEMINATION PLAN

12.1 What is the date by which the project agrees to file its first report on CCR-RCT (report of delay, preliminary findings, or final result)?

Within six months of the conclusion of the trial.

12.2 Does the project agree to file an update every six months from date of first report until date of final report?

Yes.

12.3 Will preliminary and final results be published, in a 250-word abstract, on CCR-RCT as soon as available?

Yes.

12.4 Will CONSORT requirements be met in the final report for the project? (See <http://www.consort-statement.org/>)

Yes.

12.5 What organizations will need to approve the final report? (Include any funders or sponsors).

WA Police.

12.6 Do all organizations involved agree that a final report shall be published after a maximum review period of six months from the principal investigator's certification of the report as final?

Yes.

12.7 Does principal investigator agree to post any changes in agreements affecting items 12.1 to 12.6 above?

Yes.

12.8 Does the principal investigator agree to file a final report within two years of cessation of experimental operations, no matter what happened to the experiment? (e.g., "random assignment broke down after 3 weeks and the experiment was cancelled" or "only 15 cases were referred in the first 12 months and experiment was suspended", etc).

Yes.

APPENDIX A

Treatment allocation

183 treatment days were randomised and assigned an on/off status, for each treatment location.

At the time of writing, no experimental start date had been confirmed.

Randomised date example - Perth

TRUE	FALSE	Date	OFF	ON
TRUE		01/03/2016	89	96
TRUE		02/03/2016	0.481081	0.518919
TRUE		03/03/2016		
TRUE		04/03/2016		
TRUE		05/03/2016		
FALSE		06/03/2016		
TRUE		07/03/2016		
FALSE		08/03/2016		
TRUE		09/03/2016		
FALSE		10/03/2016		
FALSE		11/03/2016		
FALSE		12/03/2016		
TRUE		13/03/2016		
TRUE		14/03/2016		
TRUE		15/03/2016		
TRUE		16/03/2016		
TRUE		17/03/2016		
TRUE		18/03/2016		
FALSE		19/03/2016		
FALSE		20/03/2016		
FALSE		21/03/2016		
TRUE		22/03/2016		
TRUE		23/03/2016		
TRUE		24/03/2016		
TRUE		25/03/2016		
TRUE		26/03/2016		
FALSE		27/03/2016		
TRUE		28/03/2016		
FALSE		29/03/2016		
TRUE		30/03/2016		
FALSE		31/03/2016		
FALSE		01/04/2016		
FALSE		02/04/2016		

Randomised date example – Bunbury

TRUE	FALSE	Date	OFF	ON
TRUE		01/03/2016	95	90
FALSE		02/03/2016	0.513514	0.486486
TRUE		03/03/2016		
TRUE		04/03/2016		
TRUE		05/03/2016		
TRUE		06/03/2016		
FALSE		07/03/2016		
TRUE		08/03/2016		
TRUE		09/03/2016		
FALSE		10/03/2016		
TRUE		11/03/2016		
TRUE		12/03/2016		
FALSE		13/03/2016		
TRUE		14/03/2016		
FALSE		15/03/2016		
FALSE		16/03/2016		
FALSE		17/03/2016		
FALSE		18/03/2016		
TRUE		19/03/2016		
FALSE		20/03/2016		
TRUE		21/03/2016		
TRUE		22/03/2016		
FALSE		23/03/2016		
FALSE		24/03/2016		
TRUE		25/03/2016		
TRUE		26/03/2016		
TRUE		27/03/2016		
TRUE		28/03/2016		
FALSE		29/03/2016		
TRUE		30/03/2016		
TRUE		31/03/2016		
FALSE		01/04/2016		
TRUE		02/04/2016		

APPENDIX B

Power calculations

Base rates:

Perth Police LPT & Response

UOF (2014/2015) n=30

Complaints (2014/2015) n=27

Assaults (2014/2015) n= Perth – 31 and Northbridge - 49

Bunbury Police LPT & Response

UOF (2014/2015) n= 27

Complaints (2014/2015) n=21

Assaults (2014/2015) n= 15

G*power graph:

