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SEBP
Australia & New Zealand
Society of Evidence Based Policing

We aim to make evidence based methodology part of everyday policing in Australia and New Zealand

CALL FOR NOMINATIONS

Distinguished Police Scientist Award

This annual award recognizes a member of the ANZSEBP who is an innovative law enforcement practitioner who is central to the implementation of a high quality program of work that advances Evidence Based Policing in their agency. These leaders of evidence-based policing not only help make high-quality police scholarship possible but also advance significant reforms in policing by utilizing science in their decision making.

- Nominees must be or have been **a member of a law enforcement agency**, either as a sworn officer or civilian employee; and
- Nominees must have been **central to the implementation of a documented rigorous scientific evaluation** in their affiliated agency. Such evaluations can be conducted for various interventions, policies, or practices and include a wide variety of outcomes (i.e., crime reduction, improvement in citizen satisfaction, reduction of fear, improvements in police legitimacy, etc.); and
- Nominees must show a **record of incorporating and translating evidence-based practices in their agency**. These practices may include implementing strategies that have been shown to be effective in reducing and preventing crime or using practices supported by research that address fear of crime, police legitimacy, internal accountability, and other law enforcement concerns. Such a record of practice might also include greater incorporation of science and scientific processes in decision making or training.

Selection decisions are made by the ANZSEBP Management Committee.

The Award winner will receive: free registration at the annual SEBP conference, a speaking role at the SEBP conference, an award plaque, free subscription to the Journal of Experimental Criminology for one year, and a published interview about his/her accomplishments to appear in Police Science.

To nominate for this award please go to our website (**www.anzsebp.com**) to download the nomination forms.

Outstanding Police Experiment Award

This award recognizes a single research project that contributes significantly to policing science. To be eligible a study must have been conducted within the last five years.

- Nominees can be individuals or teams.
- The study must be an impact evaluation that assesses the effectiveness of a policing intervention.
- A policing intervention is defined as some kind of a strategy, technique, approach, activity, campaign, training, directive, or funding/organisational change that involves police in some way (other agencies or organisations can be involved). Police involvement is broadly defined as police initiation, development or leadership where police deliver or implement the intervention or where police are recipients of the intervention. We will also consider interventions that are related, focused or targeted to police practices.
- The project must use randomised experimental (e.g., RCTs) and quasi-experimental evaluation designs with a valid comparison group that does not receive the intervention. We will accept designs where the comparison group receives 'business-as-usual' policing, no intervention or an alternative intervention (treatment-treatment designs) and quasi-experiments that control the assignment of cases to treatment and control groups (regression discontinuity), match the characteristics of the treatment and control groups (matched control), statistically account for differences between the treatment and control groups (designs using multiple regression analysis), or provide a difference-in-difference analysis (parallel cohorts with pre-test and post-test measures). Single group designs will not be considered. The following designs will be considered:
  - Randomized Controlled Trials
  - Meta-analyses
  - Cross-over designs
  - Regression discontinuity designs
  - Designs using multivariate controls (e.g., multiple regression)
  - Matched control group designs with or without pre-intervention baseline measures (propensity or statistically matched)
  - Unmatched control group designs with pre-post intervention measures which allow for difference-in-difference analysis
  - Short interrupted time-series designs with control group (less than 25 pre- and 25 post-intervention observations)
  - Long interrupted time-series designs with or without a control group (≥25 pre- and post-intervention observations)
  - Unmatched control group designs without pre-intervention measures where the control group has face validity
  - Raw unadjusted correlational designs where the variation in the level of the intervention is compared to the variation in the level of the outcome
  - Treatment-treatment designs

Selection decisions are made by the SEBP Executive Committee.

The Award winner (or winning team representative) will receive: free registration at the annual SEBP conference, a speaking role at the SEBP conference, an award plaque, free subscription to the Journal of Experimental Criminology for one year, an invitation to publish the project results in Police Science.

To nominate for this award please go to our website (**www.anzsebp.com**) to download the nomination forms.

Key Dates

Nomination Submission Deadline:	1 March 2018
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Notes for contributors

Articles for consideration should in the first instance be sent to the Secretariat, Inspector Scott McLaren at **mclaren.scott@police.qld.gov.au** for initial consideration.

They should be no more than 6000 words long (not including references) and be Harvard referenced.
Articles should be based upon the aims and objectives of the journal and the evidence based policing approach.

Contributions
Articles on issues of professional interest are sought from Australasian police officers and police academics. Articles are to be electronically provided to the Secretariat, mclaren.scott@police.qld.gov.au. Articles are to conform to normal academic conventions. Where an article has previously been prepared during the course of employment, whether with a police service or otherwise, the contributor will be responsible for obtaining permission from that employer to submit the article for publication to *Police Science*. Contributors are expected to adhere to the Journal's publishing guidelines. These guidelines are available in this journal. All papers are peer-reviewed.

Membership comprised from: • State Police • Australian Federal Police • Australian Institute of Police Management (AIPM) • New Zealand Police • Australia and New Zealand Police Advisory Agency • Universities

Message from the Chairperson

Stephen Brown *APM M.St (Cantab)*

Chairperson, Australian and New Zealand Society of Evidence Based Policing

Deupty Commissioner, Western Australia Police, Australia

I am very proud and honoured to be penning this message as the Chairperson of the Australian New Zealand Society for Evidence Based Policing. This year has started very strong for the Society, with an increase in membership of nearly twenty five percent since the beginning of the year, bringing the total number of members in the Society to just over two thousand seven hundred. You may remember from last edition that we set an aspiration goal of ten thousand members by the next conference, so there are still quite a few members to recruit.

This past year has also been a very exciting and busy period within evidence based policing (EBP) around Australia and New Zealand. A significant amount of research and large numbers of randomised control experiments have and are being run across broad areas of policing. Evident, by the quality and quantity of articles that continue to be submitted for this journal.

In September, Assistant Commissioner Debbie Platz (AFP) hosted the International Women & Law Enforcement Conference in Cairns. The conference provided an opportunity to showcase EBP, with Assistant Chief Constable Alex Murray (West Midlands Police/UKSEBP), Dr Cynthia Lum and Dr Christopher Koper (George Mason University) joining Professor Lorraine Mazerolle (University of Queensland) in presenting a number of workshops and panel discussions on Evidence Based Policing.

At the ANZSEBP executive meeting in Canberra last month, we had an opportunity to further enhance some of the strategies for the Society, including the decision to forward plan our conference two years ahead and to produce a specially-themed journal each year. The executive group also had the privilege of meeting with AFP Commissioner Andrew Colvin and briefing the AFP senior leadership team. This was a tremendous opportunity to support Assistant Commissioner Debbie Platz with the integration of EBP within the AFP.

The 2018 ANZSEBP will be once again held at the Australian Institute of Police Management at Manly, Sydney. The timing of the conference next year will be delayed slightly due to many competing events, such as the Commonwealth Games and the Police & Emergency Services Games. The conference will be held in late October, and announcement of the exact dates will be provided in the coming month.

Many of you would have heard the recent announcement that Deputy Commissioner Peter Martin has been appointed Commissioner for Queensland Corrective Services. Unfortunately, this will see him transition from his role as the Deputy Chairperson for ANZSEBP.

Deputy Commissioner Peter Martin has served with the QPS for over 36 years and is the founding chair of the ANZSEBP. Peter has been a strong, vocal and active advocate for EBP. His dedication and commitment to the science was internationally recognised, when in 2010 he was inducted into the Evidence Based Policing Hall of Fame.

Peter is an Adjunct Professor at the University of Queensland and holds a PhD for his study into the policing of licensed premises to build an evidence base relating to alcohol use abuse and harm reduction.

I have had the privilege and honour of working with Peter over many years. Whilst not being directly involved in the EBP, I am confident that Peter will lead corrective services into a strong evidence based direction. I am sure you will join me in thanking Peter for the exceptional commitment and support he has provided to ANZSEBP and EBP generally over the past decade.

The last few weeks has also seen a tremendous change within the Australian community, with the results from the Marriage Equality survey and the subsequent parliamentary debate over legislative change. I believe that EBP 'levels the playing field' for officers. It forces discussions on operational police practice that have a basis in evidence and not opinions. For all, particularly LGBTI officers, this helps to take 'conformation bias' and other biases out of the discussion.

I believe that you will enjoy the many fine articles within this journal and find value and relevance that can be applied in the important work that you do.

Kind regards

Stephen Brown APM M.St (Cantab).

Chairperson, ANZSEBP

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Message from the Editor

Professor Colin Rogers

Charles Sturt University (Australia) and the University of South Wales, (UK)

Welcome to the latest edition of the Australian and New Zealand Journal of Evidence Based Policing, and particularly warm welcome to our new Chairperson, Deputy Commissioner Stephen Brown.

This edition contains a number of fascinating articles and research initiatives which will hopefully have resonance not just for the police but also impact for the wider communities within which policing takes place. As society becomes more complex and demands on the police increase, it would seem natural that Higher Education, Research and Policing should become closer.

In part this is reflected in the wider considerations of academic research, with a new emphasis upon research engagement and impact of research. A recent report published by the Australian Research Council, entitled *Engagement and impact Assessment Pilot 2017,* tells us that research engagement is the interaction between researchers and research end users (including industry, government, non-government organisations, communities and community organisations) for the mutually beneficial exchange of knowledge, technologies and methods and resources in a context of partnership and reciprocity. In addition research impact is defined as the contribution the research makes to the economy, society and environment, beyond the contribution to academic research.

Put plainly, academic research should not just be undertaken for academic reasons alone but should be integrated with industry for the wider benefits of all. What better example of this development that the EBP approach which links police and higher education in an effort to scientifically produce results that will benefit not only the police but the people they serve.

This journal supports these values and the articles included in this edition clearly demonstrate that support.

Professor Colin Rogers

Charles Sturt University (Australia)
and the University of South Wales, (UK)

Reference

Australian research council, (ARC) (2017), Engagement and Impact Assessment Pilot 2017, Australian Government, available at http://www.arc.gov.au/sites/default/files/filedepot/Public/EI/Engagement_and_Impact_Assessment_Pilot_2017_Report.pdf

Addendum

In Vol. 2, Issue 1, of this journal, on page 49, there appeared an article entitled *'Development of a Police and University Partnership in Waikato New Zealand'*. During the production process the names of the authors were omitted and we wish to apologise to them for this oversight.

American Society of Evidence-Based Policing (ASEBP)

Jason G. Potts

Jason Potts is a Sergeant with the Vallejo Police Department where he has served for 17 years. He is a National Institute of Justice (NIJ) LEADS Scholar, an ASEBP board member, and a Police Foundation Fellow. He is also a Reserve Special Agent with the Coast Guard Investigative Service and has a background in drug, gang, and general investigations. He is a member of the Vallejo Police Department SWAT Team and possesses a Master of Advanced Studies (MAS) in Criminology, Law and Society from UC Irvine. For more information on ASEBP, please see http://americansebp.com/home/

The American SEBP held their inaugural conference at Arizona State University earlier this year to showcase and support the outstanding research being undertaken within American policing. The conference was an outstanding success with many senior law enforcement officers indicating that this was an outstanding conference where leaders of many law enforcement agencies and members of other industries were able to share ideas and best practices. ASEBP is now preparing 2018 conference which will be hosted by Professor Jerry Ratcliffe at Temple University Philadelphia in May, 2018.

ASEBP board member Jason Potts, recently completed a trial to test the effectiveness of automatic license plate readers (ALPR) in partnership with BetaGov. BetaGov in a valued industry partner playing a vital role in American EBP. The experiment involved capturing over seventy days of data from three vehicles, two of which received the intervention (alerting the officers to potentially stolen vehicles, lost or stolen plates, and wanted subjects) and the third the control or business as usual (technology operating but not alerting the officers). The results of the trial revealed the intervention group had a one hundred and forty percent improvement in the detection of stolen vehicles, compared to the control group.

Founding ASEBP member, Greg Stewart, recently completed an RCT to ascertain how much patrol dosage in a particular hot spot area is needed or enough for crime prevention and police legitimacy efforts. In their trial officers were directed to conducted community engagement patrols (CEP) in high crime areas and to prioritize unobligated patrol time with non-investigative contacts with citizens. The goal was to improve police-community relations while also decreasing crime. Ninety hot spot areas were randomly selected to receive none, two or four fifteen minute supplemental CEP. The results indicated that the intervention groups did not affect crime or calls for service in those treatment areas compared to the control groups. However, it did reveal that CEP increased positive contacts with the police, but not the overall attitude toward the police.

ASEBP is actively working within the American Law Enforcement Agencies to increase membership and to encourage more officers to develop police orientated science through research and experimentation. To learn more about ASEBP – please visit our website www.AmericanSEBP.com or follow us on social media – Twitter @ebpolicing, Facebook, and Linkedin: American Society of Evidence-Based Policing.

Canadian Society of Evidence Based Policing (CAN-SEBP)

Laura Huey

Laura Huey is an Associate Professor of Sociology at the University of Western Ontario, the Director of the Canadian Society of Evidence Based Policing, a Senior Research Fellow at the Police Foundation, a member of the Board of SERENE-RISC and a Senior Researcher and University Representative for the Canadian Network for Research on Terrorism, Security and Society.

She is also the London Police Service Research Fellow and sits on the Canadian Association of Police Governance Research & Policy Committee and the Board of the Canadian Association of Police Educators.

CSEBP are working on some exciting projects aimed at continuing to build the capacity for doing evidence-based work here in Canada.

LEADS Agencies Canada have teamed with four police agencies and four researchers across Canada, as well as our partners at the U.S. National Institute of Justice, to create a research-based project aimed at embedding EBP within small to medium-sized police services across North America. Among other goals, we are intending to develop tools that will help us to measure EBP adoption and growth within an agency.

We are developing (with our ASEBP partners) a four hour training class to educate officers on the basics of evidence based policing. The classes will be directed at both police leaders as well as frontline officers and include such topics as evidence-based decision-making, introduction to research methods and targeting, testing and tracking. In Canada, these courses will be delivered in-person through a grant from Motorola Solutions Foundation and then online through our partner the Canadian Police Knowledge Network.

Renee Mitchell from the ASEBP will be kicking off a new joint venture between the two societies, providing a webinar series on evidence based policing. The webinars will be run monthly aimed at providing police members and civilian staff increased access to information on current and previous policing related research.

Earlier this year CAN-SEBP/ASEBP co-launched a North American version of the highly successful WeCops Twitter chat. Our first guest host was Deputy Mike Serr from Abbotsford Police on the topic of the opioid crisis and police response. Our next guest will be Obed Magny from the Sacramento Police who will be discussing police morale.

In all, CAN-SEBP has had a good year and we are looking forward to continuing to grow both nationally, and as part of the global federation of SEBPs.

United Kingdom Society of Evidence Based Policing (UKSEBP)

Alex Murray

Temporary Assistant Chief Constable Alex Murray graduated from Birmingham University in 1996 and joined West Midlands Police where he worked in CID and uniform roles in the cities of Birmingham, Coventry and Wolverhampton. In 2008, he graduated from Cambridge University, with a Masters degree in Criminology. His thesis developed the understanding of police legitimacy within Muslim communities. He is passionate about involving the community in reducing crime and has led West Midlands Police on preventing violent extremism.

He is the founder, and currently Vice Chair, of the Society of Evidence Based Policing and has introduced randomised control trials into West Midlands Police as a means of understanding what works in reducing harm and providing value for money. In 2014, he received the Superintendents award for Excellence in Policing and has been recognised by George Mason University's Centre for Evidence Based Policing. He is a visiting scholar at Cambridge University, has been associate director of the Cambridge Indian Police Service Training Programme and was part of the UK National Disaster Victim Identification Team.

I am not sure you want to read about Governance, conferences, executive membership, AGM's and regional co-ordination (although all of that has been happening). Instead we see members of SEBP continually pushing for more innovation in policing ranging from road safety issues through to how we deal with gang nominals, domestic violence or how to manage teams more effectively. Here are a few examples.

Recent evidence from Denmark shows that the existence of DNA databases has a deterrent effect on crime (Doleac, 2017). So how do we capitalise on that to make a difference? I'm not sure how it works in Australia or New Zealand but largely in the UK a detention escort officer takes the buccal swabs from a subsect and then says 'on your way'. We are testing this against the same process but instead the Detention Officer delivers a narrative to the suspect along the lines of 'if you touch, breath or even go near a crime scene your presence will be detected there'. They will talk about advances in science and how even wearing gloves does not prevent your DNA being left at a scene. Suspects are randomly allocated this different narrative and we compare subsequent arrests. By adopting an evidence based approach we can measure the impact of this zero-cost intervention. Does it reduce crime or would it create what is known as the "screw-you effect" (Dawson and Dangerfield, 2017)

How then does the combination of Big Data analytics and old fashioned intervention make a difference in targeting serious offenders? Here in the West Midlands UK members of SEBP have done some insightful (but not yet published) work that is showing great promise. Superintendent Andy HILL is responsible for an operating model called Data Driven Insights. By merging many crime databases, cleansing data and then using data analysts we were interested in understanding who our key influencers are – not based on what police practitioners thought but on what the data said. The results were profound. Around 1300 potential variables were tested to understand who was the person who was doing the most criminal recruiting, most of these variables had no predictive power whatsoever however one of the greatest predictors of whether you were a recruiter or not was not your previous convictions, or where you lived, but who and what your social network is. For a police service that is intent on taking a preventative approach this is really important for a number of reasons. Firstly we now understand that when you are trying to identify which offenders to proactively target you should analyse an individual alone – but the network as it is the network that shows the best predictive power. Secondly, we now have a list of recruiters. If we target that list then we will prevent crime now and in the future.

This led onto a second piece of work by DCI Richard AGAR and DCS John DENLEY. They examined networks in organised crime groups and decided to run a randomised control trial where they targeted associates of the leaders (even when they were not in trouble with the police or were suspected of anything). The intervention was simple, a knock on the door from a detective saying we knew what they were up to, would be all over them but also offered help. This was compared to a control group which was no specific intervention other than business as usual. The early results look extremely encouraging and will be published with Dr Barak ARIEL from Cambridge University.

These are a few examples from hundreds of SEBP members engaging in trying to develop police understanding of what works. Here are two benefits of being evidence based.

1. When you come up with a slightly unconventional idea – it is easy to see it to the leadership as it will only ever be a pilot or a test – so what is there to lose?

2. When you have tested it and the results are strong, it is much harder to prevent the new leader coming in and changing everything in favour of their own plans. It prevents the following happening, written by a very wise if not slightly cynical British Criminologist, Ken PEASE (2017):

   So why do successful policing initiatives more often than not pass away? Consider the lion. A lion finds a lioness attractive. She already has cubs. He sees off her partner, the father of the cubs. He then kills the cubs. He's not going to waste time and energy nurturing progeny which do not carry his genes.

   Like the lion, the ambitious police officer, having achieved command, will be tempted, consciously or because of enthusiasm for his or her as yet unrealised ideas, to let the initiatives of his or her predecessor wither, however successful. the ideal career trajectory for the ambitious officer is to kill your predecessor's promising cubs, make a song and dance about the birth of your own cubs, then get promoted (to head of the pride) before someone comes along to kill your cubs.

References

Doleac, Jennifer L.. 2017. "The Effects of DNA Databases on Crime." American Economic Journal: Applied Economics, 9(1):165-201.

Paul Dawson, Beth Dangerfield; Bringing the Message Home: Can Writing to Offenders Influence Their Offending?†, Policing: A Journal of Policy and Practice, , pax081

Identifying Some Misconceptions about Evidence Based Policing: A Research Note

Laura Huey[a], Brittany Blaskovits[b], Craig Bennell[c], Hina Kalyal[d] and Thomas Walker[e]*

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Abstract

There is some evidence to suggest that police professionals may not have a complete understanding of evidence-based policing (EBP) and often hold misconceptions about it. To explore awareness of EBP, and the extent to which police professionals believe it is a valued approach, sworn and civilian members in seven police agencies in Canada were asked an open-ended question about its usefulness. Drawing on an analysis of 142 responses, we identified and present six major misconceptions: (1) EBP relates to legal evidence, (2) EBP results in police being taken off the streets, (3) EBP is more work, (4) EBP undermines community policing, (5) EBP is not effective, and (6) EBP lacks officer input. We discuss these misconceptions within the context of the development of EBP in Canada, and its relative newness. We then explain how these misconceptions could and should be addressed by EBP practitioners.

Introduction

This research note is informed by analysis of answers to an open-ended question appended to a survey conducted on police receptivity to empirical research. The purpose of the general survey was to replicate Telep and Lum's (2014) receptivity research with Canadian police agencies. We developed a modified version of the Telep and Lum survey[1] that included three open-ended questions not found in the original version. These questions were intended to help us more thoroughly explore knowledge of evidence-based policing (EBP), and the extent to which respondents value this approach and feel that it should be used in relation to their work and that of their organisations.

To help us explore knowledge and/or awareness of EBP, we initially coded and analysed answers to the question: 'Would you consider evidence based policing to be a good approach for your department?' We then re-analysed comments in which the respondent did not demonstrate knowledge of EBP, looking to identify themes that might help practitioners better understand where knowledge gaps or misconceptions exist. In the pages below, we present the six themes we uncovered.

Method

Recruitment

Given the difficulties associated with securing high response rates for online surveys, we felt that approaching a number of policing agencies would be beneficial to achieving a larger sample size. To ensure representative diversity, we sought participation from agencies in seven provinces, and included a mix of municipal and regional police agencies. Therefore, whereas the original Lum et al. (2012) pilot study and the subsequent Telep and Lum (2014) follow-up study drew on samples of one and three police agencies respectively, we asked seven police agencies across Canada to participate.

More specifically, senior command staff at selected police agencies were contacted by email and asked if their agency would participate in the survey. For those agencies that agreed to participate, an internal email was sent out to all employees (sworn and civilian) describing the survey, its goals, and how to access it online. Surveys were posted online as early as 18 October, 2016 using Qualtrics, and the last survey remained active until 15 February, 2017. Follow-up emails were sent to potential participants prior to the survey being discontinued.

Data Collection

The original survey consisted of five parts (Lum et al. 2012; Telep & Lum 2014). Section one explored officers' knowledge of both policing evaluation research and EBP more generally. The second part asked officers for their views of science and scientific research. Section three asked officers about their openness to innovation, including new policing techniques and strategies. This was followed by section four, which explored views on higher education and its relative merits within the field of policing. The survey concluded by asking for demographic and institutional information.

Respondents were advised that they would remain anonymous, details of their survey would not be shared with their employer, and that they could skip any questions they wished. In total, 586 individuals completed the general survey[2]. Of these, 352 sworn officers and civilian employees answered open ended question #2: 'Would you consider evidence based policing to be a good approach for your department?'

Data Analysis

After the survey data was downloaded into the Statistical Package for the Social Sciences (SPPS v. 23), a second version was created in Excel and sent to a team member for exploratory, inductive coding. The initial coding indicated that once simple 'yes,' 'no,' 'maybe,' and 'unsure' responses were removed—because they failed to yield detailed information regarding knowledge of EBP—the remaining answers provided richer details as to the relative degree of knowledge of EBP held by respondents. The result was a dataset of 149 responses. These responses were then re-read and placed into one of two categories: 'Demonstrates some knowledge/awareness of EBP' or 'demonstrates no knowledge/awareness of EBP.' Decisions as to what category a response would be placed into were made based on whether the response clearly referenced some aspect of the collection, analysis, and/or use of 'research' in policing. We were helped by the fact that many participants simply stated that they did not know what EBP was.

Drawing on the initial coding results, a decision was made to re-code the data using a more focused approach centred on the theme of 'knowledge'. This entailed identifying themes based on recurrent patterns in responses, noting related sub-themes, and then mapping these sub-themes to develop a larger picture of what the data said about officer knowledge of EBP.

To ensure the findings were reliable, all coding was independently verified by another team member. A third team member reviewed the manuscript to ensure all figures were accurately reported.

Results

Initial Results

Question: 'Would you consider evidence based policing to be a good approach for your department?'

Response received: 'Possibly, but I would like to see more analysis and/or evidence of what this strategy would entail.'

Of the 149 comments analysed, we found that 42 evidenced some knowledge of EBP. For example, one respondent opined that 'research and evidence based policing provide a concrete foundation to gear policing strategies.' Another replied, 'policing strategies based on scientifically conducted, and peer-reviewed studies make far more sense than relying on old-fashioned systems based on tradition.' An officer from a different agency stated, 'I believe scientific study has a definite role to play in analysing the effectiveness of policing methods and tactics.'

Conversely, 107 participants clearly stated they did not: (1) know what EBP was, (2) were confused by the meaning of the word 'evidence' in this context, and/or (3) provided other indicators that demonstrated a lack of knowledge. The most common answers in this third group included: 'Not sure what is meant by this term' and 'DONT KNOW WHAT THIS IS.' Other examples in this category are discussed among the themes presented below.

In short, the responses analysed indicated that most participants who responded to this open-ended question in some detail were unfamiliar with the concept of EBP. In the next section, we examine some of the themes that emerged in their comments. The identification of these themes can, we believe, help EBP proponents address what might be common gaps and/or misconceptions about EBP among police practitioners.

Themes Identified from the Data

In this section, we draw on the thematic analysis we employed to help us better understand gaps in knowledge of EBP. In particular, we wanted to know more about what police professionals who were not familiar with the concept thought EBP might mean and where there might be misconceptions or misapprehensions that could be addressed through future knowledge mobilisation efforts. In total, we identified six themes worth further attention.

Legal evidence, not research. One of the biggest sources of confusion is rooted in the name. The term 'evidence based policing' is derived from an earlier, similar movement—evidence based medicine (Sherman 1998). In medicine, evidence refers to results achieved from rigorously designed research. In the policing environment, evidence has traditionally meant something entirely different: A fact that meets standards of admission into a set of legal proceedings.

Not surprisingly then, some individuals who lacked knowledge of EBP misunderstood the concept of evidence and its use in this context. 'If I knew what it was,' one respondent acknowledged, 'Isn't all policing evidence based????' Another agreed that EBP is a good approach because 'that is what I use to determine how an event occurred and who is at fault.' Another replied, 'I don't know what other method could be used. Court oversight examines and weighs "evidence".' One officer thought that EBP was common sense: 'As a police officer or investigator it is our job to follow the evidence and let the evidence dictate the course of the investigation.' Still another worried that the emphasis on evidence could be problematic because 'There are some investigations that have no evidence at all other then the allegation that's been made. Evidence takes time to gather and is not always available at the time it's needed, ex. DNA evidence.' Some did, however, see the benefits if it meant that 'with CCTV or other evidence you won't need witness accounts to corroborate what occurred.'

EBP = Cops taken off the streets. A key component of identifying 'what works' in EBP is centred on the effective and efficient allocation of policing resources. A raft of studies—from hot spot policing to foot patrol evaluations—have all been directed at determining which policing strategies and programs use resources wisely, without producing crime displacement and other backfire effects (Slothower, Sherman & Neyroud 2015; Weisburd et al. 2011). While it is the case that a strategy implemented on the basis of one or more of these studies could result in police officers being reallocated, or assigned new or different tasks, we are not aware of any case in which a study resulted in police officers being removed from patrol or other frontline duties. This was, however, a concern of some respondents.

One respondent wanted to see 'more details on implementation' but was concerned that EBP might entail removing police officers from the community. 'People still want to see a cop at the door when they call,' he advised. More specifically, some participants worried that frontline officers might be reallocated from patrol or community responsibilities, or new officers simply assigned away from patrol to work in offices generating research. One participant expressed this concern in the following way, 'The onus is placed on general patrol officers, who are already incredibly overwhelmed/worked with calls for service. We are over specialised and do not have enough boots on the ground. Cops on corners, stop crime - Not cops in offices researching new policing tactics.' This concern was shared by another officer, who advised, 'I am a huge advocate of not removing policing agencies from close contact with the community it serves. There must be a balance. Removing oneself from community stakeholders to "hide" behind a computer is, in my opinion, a flawed strategy.'

EBP increases workload. Despite the fact that EBP is not about increasing workload or cost inefficiencies, but rather about ensuring that existing systems and processes—whether they be crime-control strategies or human resource decisions—are effective and efficient, some participants expressed concerns that EBP would increase officer workload and/or policing costs. Recall one of the comments cited in the paragraph above, where a member expressed how their agency was 'overwhelmed' with calls for service. This view was expressed by an officer from the same city, who stated: 'We need to get more staff in the reactive component…as the city is tied down due to calls for service.'

An illustrative example of the 'inefficiency concern' was found in the following statement: 'I don't know much about this strategy but it sounds like it would involve a great deal of leg work prior to implementing any strategy. How cost effective would that be?' Others cited a 'lack of resources' as a barrier to adopting an evidence based approach: 'The theory is practical, however the lack of resources do not support it's [sic] effective application.' Another officer thought EBP might be 'somewhat' useful, but worried if there would be 'appropriate resources to use.' Still another expressed concerns over the possibility of an extra work burden that might render police less efficient: 'Would the paperwork alter our ability to serve the public? How would this approach change our workflow? Would it hamper our ability to provide information to prosecutions (in a timely manner)?'

EBP = less or no community policing. EBP is an approach that can work well in combination with other major policing philosophies, notably with problem-oriented and community policing models (Bueermann 2012). It is not a total or absolute vision in the sense that its adoption necessarily requires an organisation to abandon reliance on these other models. Indeed, many police services have found that EBP and community policing can be highly complementary. Unfortunately, this message may have failed to gain wider traction among Canadian police audiences. This suggestion is based on the fact some respondents stated they would only be supportive of EBP if their organisation did not abandon their community policing approach.

'As long as the community based policing still plays an underlying role,' one participant wrote, he would view EBP as a valuable approach for his organisation. Another similarly replied 'Yes,' to EBP, but that its use 'also needs to include aspects of community policing.' Yet another officer thought EBP would be a 'great approach', if used as 'an extension of community based policing.' While a fourth individual thought there was 'no doubt every police department or service should use evidence base policing to support their presence and implications,' she was concerned that EBP might actually inhibit community policing because: 'EBP does not allow Police to fully integrate themselves in the community as Policing is a "sense," a "gut instinct," a commitment to the community!'

EBP is not effective. As we have stated throughout, much of the focus of EBP is on increasing effectiveness and efficiency, particularly (but not exclusively) on issues of crime control. However, this message has also failed to translate to a wider audience, as one major theme represented in several comments received was the perceived ineffectiveness of EBP strategies and programs in addressing crime and disorder.

In essence, respondents whose comments fell under this theme perceived their world as too fluid and/or complex to be accurately captured in data. As one explained: 'Statistics are not an accurate reflection of actual crime and disorder.' This view was shared by an officer in another service: 'Policing is a dynamic, fluid response to volatile often unknown circumstances. Due to this nature, no amount of statistics or analysis can accurately or effectively assist in the deployment of resources or the profiling of crime.'

Someone else disagreed about the utility of EBP in assisting with resource allocation issues, but similarly thought those changes would have little effect: 'I believe it is a good model in that it puts resources in the right places...but...it will not improve the crime rates we have here.' One explanation for why reliance on research evidence could have little effect on crime rates was offered by an officer in a different city: 'Only incarceration works at minimizing crime in a noticeable way. Evidence based policing and any other form of resource allocation will only be effective at disrupting trends or displacing crime.' Some felt that EBP would be a good approach, but only 'when combined with traditional approaches to policing' because it is not 'practical'. Another individual could give only qualified support to EBP because it is 'a reactive approach' and thus limited in its potential effectiveness.

EBP lacks officer input. We received fewer comments about the last theme that arose; however, we include it here as we felt it important to highlight. A core principal of EBP is that the research produced be a product of the experience of police officers and the academic skills and knowledge of the researcher (Sherman 2013). Part of the job of EBP practitioners is to ensure that officers and civilians in relevant roles throughout an organisation are engaged with the research creation process in a meaningful way, and that this expectation is embedded in how EBP is communicated and used. Some respondents were unaware of this condition, which was reflected in their comments. The most illustrative example came from a participant who was not supportive of the idea of EBP because 'I find that when academics try to mold policing without actually having experiencing it for themselves, the solutions that are brought forward are either impractical or unrealistic.'

Conclusions

Since its introduction in 1998, the EBP approach has generated a significant volume of research and knowledge mobilisation activity. Since 2010 alone, there has been the development of four national EBP Societies[3], the recent launch of a new journal[4], as well as a host of workshops and annual meetings. Each of these activities has helped to generate a global membership of over 5,000 police and civilian police employees in one or more of the Societies, with that number growing daily. All of this would seem to suggest that knowledge and awareness of EBP is becoming increasingly mainstream within policing circles. Findings presented in this research note indicate, however, that EBP practitioners need to do a better job of communicating what EBP is versus what it is not to policing audiences.

There is some good news, though. The focus of our research has been on Canadian police agencies. In Canada, EBP is a much more recent arrival in contrast to the U.K. and Australia. For example, whereas the U.K. Society of Evidence Based Policing was founded in 2010, the Canadian version launched in 2015. Furthermore, EBP-themed workshops, articles, videos, and other modes of knowledge exchange only really began in Canada in 2016. Thus, it is hardly surprising that significant knowledge gaps remain and it is encouraging that a reasonable number of police professionals in Canada evidenced some knowledge of EBP. The utility of this research note is to provide some insights into how to respond to the knowledge gaps that do exist, and, perhaps more importantly, to the misconceptions and misunderstandings highlighted by our survey respondents.

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End Notes

1. Certain questions related to rank and education that were not appropriate for Canadian police services were revised. In addition, Canadian-based journals, magazines, and agencies were added as options to certain questions to make them more applicable to a Canadian policing audience. Lastly, a question related to the efficacy of "legitimacy policing" was removed, and four other strategies were added that were arguably more appropriate for Canadian agencies.
2. Results from the larger receptivity study will appear in a second, forthcoming paper.
3. In the United Kingdom (U.K.), Canada, the United States (U.S.), and Australia and New Zealand.
4. *Police Science,* launched by the Australia-New Zealand Society of Evidence Based Policing in 2016.

Rewarding Operationally-Relevant Research: A Critical Role for the University

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In May 2017, Howard Spivak, the Acting Director (at the time) of the US Department of Justice, National Institute of Justice (NIJ) explained that NIJ is stressing the importance of translating research findings and making them available in practical terms to policymakers and practitioners. He wrote: '… we are also calling on research organisations, particularly academic institutions, to critically reflect on what they value when assessing a professor's qualifications for receiving tenure.'[1] His plea for both the need to share research findings with those who can implement them, and to reward the researchers for translating the findings into evidence, is an important step toward bridging the gap between researchers and practitioners (see Lum & Koper 2017; Rojek et al. 2015).

In Great Britain, the four Higher Education Funding Councils have encouraged academics and institutions to produce 'impact statements', to include forms of assessable outcome measures for applications. Following the British model, the Australian Research Council has recently looked at the impact of university-based research on real-world applications. While these efforts have not systematised their approach to impact, they have encouraged broadening of the concept, and made suggestions on how to measure it. In the United States, the NIJ now requires researchers to articulate in their proposals the potential impact of the study on policy and practice, and plans to disseminate the research to practitioners and policy makers, but these efforts to incorporate these considerations only influence the small number of academics who compete and receive NIJ research grants. For the larger portion of the academic community, the conceptualisation of research impact largely remains citation counts and other traditional measures.

While there are some academics in all these (and other) countries who take the time and effort to put findings into an understandable and useable form, many remain content to publish their results so other academics will cite their work, which helps improve the metrics by which they are currently recognised and rewarded. In other words, because publishing in outlets other than those recognised by the academic community is timely and unrewarded in the academy, it is rare. As Dr Spivak suggests, this emphasis on limited metrics must be modernised to encourage members of the academic community to contribute to the important base of information used by practitioners, by recognising and rewarding their efforts. The growth of translating research into practice is increasing, but largely remains a desired goal rather than a development to be examined. By contrast, the study of the translational process has been an area of interest in medicine, public health and education (Chambers et. al. 2011; Huberman 1994; Jacobson et al. 2005; Lavis et. al. 2003). The growth of similar efforts in criminology would not only inform the practice of translation, but also improve its relevance in the discipline (Martin & Mazerolle 2016).

In many disciplines, applied research is considered secondary to the development and testing of theory. Some departments and universities even limit the journals in which articles count as having impact, based on a complicated and manipulable set of measures. Researchers do what brings them rewards, so how can the academy modify behaviour and willingness to spend time and effort translating academic research findings? If academic leaders recognised the importance and the influence of evidence, they could re-define the measurement of impact.

The suggestions made by the British and Australian councils and NIJ should be used as a springboard so university administrators can begin the process of re-defining how applied researchers are rewarded. This change will not be a substitute for high-quality, peer-reviewed research published in prestigious academic journals. Any young scholar will have to prove her or his worth by competing successfully in the world of publication that has been around since the beginning of the academy. Time taken away from that world will reduce the traditional measures of impact. However, these traditional measures do not show, in the mid-2000s, what is real impact. The Internet has changed the way we receive and share information. For example, ideas are presented by scholars on a variety of websites where others can comment and provide insight to the scholar on the ideas. Blogs are often an important way to share and comment on ideas as well. Reads, downloads, shares, and other actions are all ways to measure impact. For example, the growth of the evidence-based policing movement, and the establishment of collaboration between researchers and policymakers, shows the willingness of practitioners to accept research findings as evidence. We are still struggling with ways to evaluate the utility of published findings and other evidence, but the implementation of ideas in the real world certainly indicates impact. The question becomes how to capture the influence of a particular scholar on practitioners or policymakers.

Our incremental way of rewarding academics remains, with the goal of professorship and named chairs having the highest earned status. Perhaps a conventional path to the first promotional level should remain in place so traditionalists are pacified and young academics are force to continue to demonstrate abilities and show acceptance. At the next point in the promotional process, however, applied research and translated findings must be encouraged and rewarded. While measures are not yet well defined, evidence generated by research can be demonstrated and clarified in a systematised impact statement that includes organisational and behavioural measures of success, to be evaluated by academics and practitioners. Starting at the department level in applied fields, a scholar should be rewarded as one who contributes to the real world and makes a difference not just to other scholars, but also to those responsible for managing the systems the scholar studies, and the public who benefit from the changes. For example, the term commonly used is 'evidence', and we argue for a concept that includes evidence and other, broader contributions and ways to measure them. Beyond the traditional matrices, we think other outcomes and outputs should be recognised.

Again, we do not suggest that all scholars should be held accountable to illustrate a real-world impact of their work, but to suggest a framework that values and rewards such efforts.

In Australia, promotion to a Senior Lecture position, and in America, promotion to an Associate Professor, may remain true to the old system of impact.

Beyond the first level, and after proving one's abilities, impact should be comprehensive and include measures of practicality and usefulness. The successful scholar has proven herself/himself at one level, and the goal of success should be broadened to include not only traditional measures, but real-world recognition. Today, scholars are reviewed by peers for promotion (and tenure in the US).

Perhaps the assessment of a skilled practitioner should be included in that analysis? Other, more senior scholars are often asked whether a candidate is well-known or has developed a reputation in the field. Who better to supplement assessment information to help answer that question than practitioners? An applicant could explain his or her efforts in an impact statement critically reviewed by practitioners who are aware of the true impact of the research.

For example, if the authors were to develop an impact statement, it would include the reports and data from almost a decade working together in a partnership between Griffith University and the Queensland Police Service to combine research evidence and officer experience into organisational and behaviour change. In just the areas of pursuit driving and use of force many lives have been saved, injuries averted and costs reduced, based on the use of evidence to change policy and influence behaviour. This impact statement could be evaluated by those in the agency management chain and their conclusions could help the university administrators evaluate the work of the academic. The critical issue is the value ascribed to the real-world impact. For example, the impact statement could include contributions to national standards, or best practices. Certainly, invitations to testify to national or regional policy boards or panels, task force reports, coroner's inquests, court proceedings or investigations, would all be important efforts. Research that has been translated to reach the practitioners and which has made a difference is perhaps the most important contribution. While the list could be expanded, the point here is to get the conversation started.

We argue that real-world impact must be part of the criteria that reward academics, and the more value that is added, the more real-world impact we will see. The academic work conducted, translated and published in professional outlets will not replace traditional academic publication outlets. The academy will never be void of a journal hierarchy, Journal Citation Reports, Google Metrics and other ways to evaluate scholarship traditionally, but the thoughtful interpretation of these measures (and others) is always dependent on experts and personal perspectives. Finding a way to combine these diverse but related reward metrics will benefit researchers, universities, agencies and the public.

End Notes

1. https://nij.gov/about/director/Pages/spivak-communicating-science.aspx

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Call for Articles

Articles on issues of professional interest are sought from Australasian police officers and police academics. Articles are to be submitted electronically via the AZNSEBP website (anzsebp.com). Articles are to conform to normal academic conventions. Where an article has previously been prepared during the course of employment, whether with a police service or otherwise, the contributor will be responsible for obtaining permission from that employer to submit the article for publication to Police Science. Contributors are expected to adhere to the Journal's publishing guidelines. All submissions are subject to review. Articles should be no more than 6000 words (not including references) and be Harvard referenced. Articles should be based upon the aims and objectives of the journal and the evidence based policing approach.

Aim One: Increased use of best available research evidence to solve policing problems:

- Raise awareness of the value of evidence-based practice.
- Provide access to research tools and guidance.
- Advocate evidence-based practice across all policing bodies.
- Provide a forum for police professional researchers.

Aim Two: The production of new research evidence by police practitioners and researchers:

- Support police practitioners to undertake research projects.
- Support police practitioners to access research expertise.
- Support researchers to access police data.
- Facilitate awareness of ongoing police research projects.

Aim Three: Communication of research evidence to police practitioners and the public:

- Disseminate police-based research to different audiences.
- Present the implication of research findings for policing practice.

Article Submission Guidelines

Articles must be written and presented in English.

Articles are evaluated according to the following criteria:

- relevance to the conference theme
- relevant to an Australasisn policing jurisdiction
- professional merit
- contribution to knowledge, practice and policies
- clarity

It is the responsibility of the presenting author to ensure the article is submitted correctly. The ANZSEBP will not be held responsible for article submissions not received via the online submission process, or for submission errors caused by internet service outages, hardware or software delays, power outages or unforeseen events.

Acknowledgment of receipt of your article is not deemed as an acceptance for publication.

Style Guide for attachments

Font type and size for the abstract text: **Arial**, **11pt** left justified.

Abstract must not exceed 300 words and must include a title.

No references, graphics, tables, footnotes or images should be included with your abstract text.

Use standard abbreviations only. Within the body of the abstract, when using abbreviations spell out the name in full at the first mention and follow with the abbreviation thereafter. Abbreviations may be used in the title, provided the name in full is outlined in the body of the abstract.

Author's biographies (200 word maximum) and photo are to be submitted with the abstract and all biographies to be written in third person.

Operations Reset—The Impact of Police Initiated Procedural Justice Intervention Conversations on Offending Behaviour: 9 Cent Crime Reductions?

Inspector Corey Allen and Inspector Mike Newman

Approaches to the application of the principles of procedural justice have traditionally focused on 'first contact' and operational interactions with members of the community. Victim and offender contact by first response officers is often limited to the initial stages of an investigation or an incident. Once an investigation is complete and an arrest or charge is commenced, contact with the offender by police for reasons other than process is limited.

Recidivist offender targeting efforts have characterised the police role as focused on identifying and locating offenders, assertively prosecuting, and removing offenders from the general community (Makkai et al. 2004). The perceived fairness and long term effectiveness of recidivist offender programs has been questioned and considered by some to be over-policing, with the potential to damage relations between police and this element of the community (Public Interest Advocacy Centre 2015). Procedural justice has been highlighted as a key strategy towards improving police and community relationships, including legitimacy, and the building of trust and confidence (Rosenbaum & Lawrence 2011).

Whilst there are many support service managed approaches to minimising the harm for victims, and structured victim support programs, there is little evidence of approaches by police to manage contact with repeat offenders by applying the elements of procedural justice after an arrest has been commenced. Tactics aimed at repeat offenders managed by police tend to focus on enforcement, compliance and other interdiction centred on the use of authority, bail and further charges as leverage or deterrence.

This research aims to test the effectiveness of a phone conversation (at a cost of about 9 cents a call), initiated by a senior police officer, with repeat offenders in an effort to change their offending behaviour and contact with the criminal justice system.

The use of interpersonal skills and procedural justice interventions using scripted conversations at the front end of an interaction have proven to be effective in changing officer behaviour and improving the value and impact of the contact (Mazerolle et al. 2012; Wheller et al. 2013). This research aims to apply the principles of procedural justice to the management of repeat and recidivist offenders post-arrest using a 'procedural justice intervention conversation'.

Critical coaching conversations in the workplace are regularly used to manage individual performance and behavioural issues in a workgroup. The most successful crucial conversations are initiated by a person in the right position relative to the subject, engaging in a manner that reflects the principles of procedural justice and fairness as they may apply to a work unit (Patterson et al. 2011).

This research will test the effectiveness of that approach by using a senior police officer to contact an offender at a time when the offender may be more willing to accept, act on and engage with support services. Recommendations will be made as to how this type of conversation may complement traditional repeat offender strategies, by offering a procedurally just interaction.

Research Contribution and Key Research Questions

This research aims to apply that type of critical conversation intervention approach, initiated by a senior policer officer using a procedurally just script, to recidivist offenders. This research also aims to examine offender behaviour changes by monitoring offender involvement with the criminal justice system, including further offending behaviour and involvement with police in non-enforcement contact such as street checks. Participants will also be surveyed to identify any differences in perceived police legitimacy as a result of the crucial conversation and the way it is conducted. Figure 1 provides a graphical logic model for this proposal.

Figure 1 – Logic Model

The evaluation of this course will provide insight into the effectiveness of reducing recidivism for the cost of a 9 cent phone call and inform future police practice in Queensland.

Specifically, the evaluation will address the following research questions:

1. Did referral uptake increase?
2. Did the intervention positively influence participants?
3. Was there a reduction in specific types of offences?
4. Was there a reduction in the number of offences?
5. Was there an increase in the time to fail prior to a further arrest?
6. Was there a reduction in the overall number of contacts with police?

Project Design

Intervention, Project Setting, and Duration

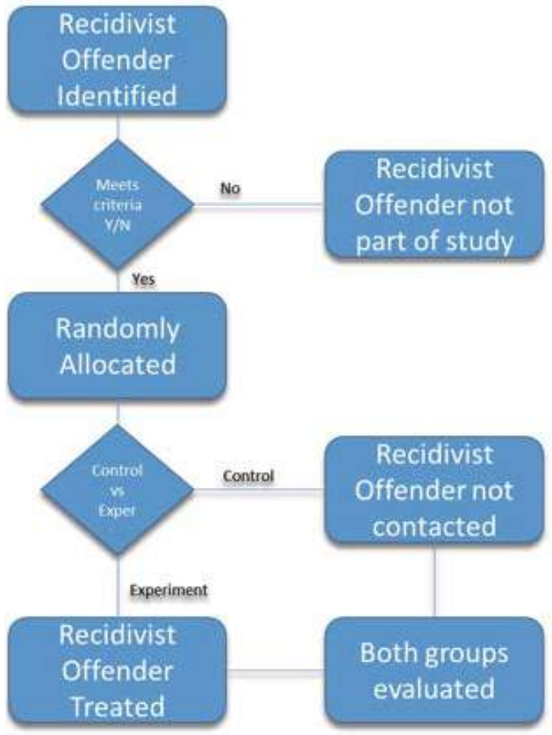
The intervention will consist of a senior Queensland Police Service (QPS) officer, Inspector Corey Allen, telephoning suitable recidivist offenders and engaging with them in a semi-structured conversation containing procedurally just elements. The conversation will be outside the context of any investigation or concurrent matter, and will explore issues the offenders are facing. We hope to identify the situations, behaviours and risks that lead to offending behaviour and suggest interventions, alternative behaviours and referrals to support agencies if appropriate. The aim is to then develop, with the participant's consent, a plan that is focused on changing their recidivist behaviour.

Inspector Allen will interrogate the referrals manager reporting system to identify suitable persons and make these phone calls from his office. It is envisaged that this project will take up to 6 months, but given its rolling nature, further participant identification will cease when 100 participants are recruited.

Participants and Research Design

A repeat offender, for this study, will be considered to be a person who has been convicted on at least two previous occasions, has recently been re-arrested, is not currently in custody and is not currently under investigation. A potential participant who is currently incarcerated would have the likelihood of skewing the results. A cross operations check will also be conducted to ascertain that potential participants are not currently under investigation, in order to minimise possible interference with that investigation.

Figure 2 – Recruitment Flowchart



This study will take the form of a rolling randomised control trial (RCT). As repeat offenders are identified, their details will be entered into an Excel spreadsheet matrix and they will be randomly assigned to the control or treatment (experimental) group. This matrix will continue to be filled until 100 suitable participants have been randomly allocated. A flowchart of this recruitment process is illustrated in Figure 2.

At the commencement of the phone call each participant in the treatment group will be advised that the conversation will be recorded, given a detailed explanation of the project and provided with the opportunity to continue their participation.

The call will take the form of a semi-structured conversation to ensure that the elements of procedural justice are included. The semi-structured nature and the single officer conducting these conversations will ensure that a consistent approach is taken with each participant.

The phone call will involve the development of a 'reset' plan for each participant who agrees to be part of the trial. Each plan will differ dependent upon the circumstances of the participant. After the phone call, at a period yet to be determined, a follow-up letter will be sent to each participant as a 'nudge' to remind them of their plan and to encourage them to access and seek the help that has been offered.

To identify the effectiveness of this approach, at 3-month and 6-month intervals post contact an analysis of each participant's history of contacts with the police or the criminal justice system will be examined and compared.

Each of the treatment participants will receive a full explanation of the project at the commencement of the phone call and will be advised that they can opt out of the evaluation at any time. Inspector Allen will create a project email account and provide those details to each participant to enable them to withdraw their consent, should they choose to do so. An informed consent form will be created and provided with each of the follow-up letters, again reminding the participants that they can withdraw from the evaluation at any point.

Data Collection and Measures

We will survey course participants in both cohorts, to evaluate their perceptions of police. We are aware that this cohort may not respond to mail out survey requests, however we believe it is important to offer the opportunity.

QPrime crime occurrence and police reporting data will be collected regarding the offending history, and contacts with police for each participant for 18 months prior to contact and up to 6 months post contact.

Conclusion

This project is due to commence in December 2017. The recruitment process will only last as long as it takes to fill the necessary pool of 100 participants overall for this study. Any risks associated with this study will not be above those of everyday living. The intended conversation will not be invasive and the participants will be reminded they are free to withdraw from the conversation and/or survey at any time. Participants will not be in an environment that will pose any risk to them, and their information will be kept confidential and anonymous. The conversations can be viewed as similar to an officer approaching a known repeat offender in a public place to make positive, proactive contact, an activity that police are encouraged to do as a regular intervention/engagement tactic.

The proposed evaluation of this intervention will use a randomised controlled trial design, which is the gold standard for intervention research because any differences and confounds are theoretically distributed equally between the experimental and control groups via random assignment. The sample size is large enough to allow analytic techniques to capture intervention effects. Using advanced multi-level statistical approaches to model the data gathered, the proposed research will have sufficient power to detect differences between the experimental and control conditions.

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Preparing Policing for the Predictive Analytics Future

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Advanced computer algorithms are already being used to forecast all kinds of human behaviour. From purchasing decisions made in the supermarket to the safety (or lack thereof) of new teenaged drivers, predictive analytics are now a common part of everyday life. These tools allow countless businesses to make decisions based on often startlingly accurate predictions of future events, and to produce these forecasts in a manner that is consistent, evidence-based, and that—at least at first glance—appears to be objective and free from the biases of human decision-makers. That predictive analytics present enormous potential value to policing seems abundantly clear. It also seems equally certain that these techniques will eventually enter into everyday use within most police agencies, especially those challenged by reduced governmental funding.

Regardless of the utility and accuracy of these forecasts, however, it remains very unclear whether the public and their representatives will accept the use of predictive analytics within the criminal justice system (Harcourt 2008; O'Neil 2017). Many consumers seem content with having their own behaviour encoded, scrutinised, and forecasted for commercial purposes, such as by using store loyalty cards, establishing trackable accounts on shopping websites, and having their predicted purchases advertised to them on Facebook. It is also true that most of us have no idea how often our behaviours are being predicted by some form of analytic software. But for the purposes of modern policing, the public acceptance and all-too-common lack of transparency seen in the commercial realm present both an opportunity and sincere challenge.

On one hand, it is tempting for police agencies to mirror the patterns already established in the marketplace. Law enforcement agencies have collected decades of machine-readable administrative data, and invest enormous sums of taxpayer money to maintain and store both countless terabytes of information and innumerable paper files. From this perspective, it seems obvious that this information should be put to use, and that these many years of information technology costs should be leveraged to the maximum extent possible to inform better policing outcomes.

Moreover, predictions are already part of what law enforcement agencies do every day, and these forecasts are often produced so quickly and with so little transparency that we may not even think of them as predictions. An arrest decision made by a third-year constable at the scene of a domestic dispute is, at least in part, based on a prediction of whether the situation will escalate or lead to repeat calls for service in the next few hours. Assuming that this arrest occurs, it leads to an extensive number of other decisions—concerning bail, protection orders, charging, prosecution, guilty pleas, sentencing, and any number of other choices—that depend upon on often quickly made assessments of what the offender is likely to do in the future. Given that these informal forecasts are happening anyway, it seemingly makes perfect sense to apply advanced data analytics to enhance their accuracy and ensure consistency across an agency.

This same economically-oriented perspective could be extended to suggest that there is little need to provide any more transparency to the public concerning these algorithmic predictions than is currently available regarding the countless decisions that are already being made within the legal system by human actors. While the public is usually told the outcome of our decisions, we have never been either able or expected to explain every single element that played a role in reaching them. Why should our predictive algorithms be any different, especially when they are so commonly used and accepted in other areas of everyday life?

On the other hand, the legal and criminal justice systems are simply different. Our decisions carry massive weight, affecting both individual liberty and community safety (Angwin et al. 2016). Our ability to make these decisions relies extensively on pubic consent, and is financed from the public purse. The public will also ultimately bear the cost of constructing, deploying, and defending any predictive analytic solution used within the legal system. Even though they may use many of the same technologies and techniques, predictive systems developed for the police and other legal actors will almost certainly be held to different standards and expectations than those used by commercial concerns (Berk & Hyatt 2015; Oswald et al. 2017).

These differential demands become quite understandable when considering just a small number of hypothetical anecdotes. The same people who are unconsciously willing to hand over the highly personal data that allow Amazon to suggest interesting new books may be far less accepting when a computer determines that their son-in-law is 'low-risk', and can be safely bailed after a domestic dispute involving their daughter. Other community members will question a sudden increase in police presence—likely leading to more stops, searches, and arrests (Ratcliffe et al. 2015)—stemming from an algorithmic forecast that their neighbourhood will experience elevated levels of crime. And it seems increasingly clear that defendants and their attorneys are likely to be deeply disquieted by the notion that an algorithm, which is neither transparently constructed nor available for cross-examination, may produce forecasts that have a direct impact on decisions by the court (Angwin et al. 2016; Harcourt, 2008; Hyatt et al., 2011). The courtroom and the street, however, are vastly different environments. Predictive analytics will inescapably play a crucial role in the future of policing. But before this future can take hold, law enforcement agencies must first lay an appropriate foundation to both support the construction of predictive models, and govern their use after they have been built.

This essay was written with three purposes in mind. First, it sets out a number of steps that police agencies can take today to prepare their data systems for the coming wave of algorithmic forecasting. Second, it presents some concepts that will help to distinguish more advanced and potentially useful approaches from those that rely on older and less accurate techniques. Finally, it describes some of the ethical concerns that should be firmly recognised and addressed before even attempting to construct a predictive analytic solution within the justice systems. A firm understanding in all three of these areas is likely needed now, if only because the fields of artificial intelligence and machine learning are expanding at an exponential pace.

This rapid expansion means that more and more consultants, academics, and businesses are now working in this sphere. If it hasn't happened already, these people will soon arrive in meeting rooms throughout our agencies to make grand promises of what their technologies can do. Whether these promises can be met, however, depends in large part on how prepared we are to deliver the information needed to power these approaches, the questions we ask, and whether the public determines that our predictive solutions are more beneficial than worrying.

1. Preparing the Data Environment

Most policing agencies will already have a number of large and complex data systems available for use, but these systems may not be configured and designed in a manner that allows easy linking between them, or easy access to key predictors. For our purposes, the term 'predictor' refers to any value from the past (e.g., number of prior arrests for violent crime, age at the time of first arrest, current age) that could be used by an algorithm to predict future criminal behaviour. Many of the most common problems in obtaining these predictor values are endemic to most law enforcement data environments. Solving these problems now will not only allow the eventual development of algorithmic forecasting, but will likely also make existing systems much stronger and better able to respond to other needs.

Linking Keys. Linkable key values are a crucial concern. All too often, offenders and victims are assigned one (often numeric) key in one data system, only to be given an entirely separate key value in another. Similar issues exist in geographic data, with different databases often recording information at varying scales and using different definitions to demarcate areas of interest. The lack of common, linkable keys is an especially common problem when data are shared between agencies. Database professionals have known about this problem for decades, of course, and the most common solution has been to create a cross-agency person (or area) identifier that can be used across multiple data systems. These values are often defined at the state or national level, but are not always reliably recorded in agency-level databases.

In working with two neighbouring counties in Pennsylvania, for example, we found that the same statewide court database properly recorded the offender's state-issued identifier key for over 99% of all criminal cases in one county, but was available for only 75–80% of the cases in the other. Even if missing key values occur only rarely, they can present an exponentiated level of difficulty when multiple systems must be linked together. An individual agency may be satisfied when one of their systems records a linking key 97% of the time, but when this same scenario is mirrored by multiple partner agencies and the key value is needed to join 10 systems together, over a quarter of all linking attempts will fail in connecting to at least one data source. Under these conditions, it may be impossible to construct the reliable data set needed to build a predictive model.

Another issue, especially in older data systems that likely still exist in most law enforcement agencies, is the physical limits that prevent external identifiers from being stored, at least in their entirety. One system in Pennsylvania, for example, was unable to adapt when the court system adopted a much longer alpha-numeric identifier for each criminal case. The solution was to truncate the case number so that it could fit into the available space, but this adaptation meant that the value from the agency database could not be directly linked to data provided by the court system. Some other databases may be limited to recording only a single external key value, which may be a problem when multiple potential linking keys exist at the state and national levels.

The solution is to pay rigorous attention to the quality of linking key values across the full range of law enforcement data systems. While internal database issues are not something that agency leaders normally pay much attention to, this particular issue is crucial to ensuring that a 'big data' future is possible. Leaders can communicate its importance simply by asking for regular reports of what linking key values are being stored, how often these values are missing, and how often validated links are possible to other key databases within the criminal justice system.

Access to Raw Data. Once the databases can be linked, the next question is whether the appropriate people within the agency have sufficient access to them. Many of those who perform data analysis within police agencies, and who would therefore seem ideally placed to lead the development of predictive analytics, may not have the level of access needed to combine all of the data into a single source. Most agencies provide analysts with access to a series of 'pre-digested' data sets, which are often created for an entirely different purpose. These existing data sources necessarily encapsulate a large number of different coding decisions—such as national offence counting rules, exclusion criteria which make some records invisible, and an unknown number of missing variables. These limits may be counter-productive in constructing a big data solution, where rich and more complete data are essential.

Modern predictive analytic solutions work best when provided with as many different sources of relevant information as possible (Barnes & Hyatt 2012; Berk 2012). This means not only the linking of data held in different systems, but also combining and transforming a relatively small number of values to form a multitude of potential predictor variables. These kinds of calculations, however, almost invariably require access to the raw information held in the 'back end' of the agencies' data structures. Analysts are often not provided this level of access, and database administrators will be understandably concerned about allowing it to those seen as 'outsiders'.

The 'siloed' organisational structure of many police departments can also be a barrier in giving the right people the necessary access to the right data. Different teams, with different purposes, often work in very different information technology environments. They literally speak different (programming) languages. Analysts may not be able to write the computer code needed to extract data from deep back end data stores, while database administrators may not understand the nuances in calculating the many different predictor variables that are needed to power an advanced forecasting model. In many cases, people from a mixture of different teams will need to work together, and it will take time for them to reach an understanding of each other's needs and capabilities.

Matching Construction Data to Live Forecasting Data. Building a predictive model is very different from deploying one to provide real-time forecasts in a live operational environment (Barnes & Hyatt 2012). The construction data that are used to build a forecasting model are usually obtained and combined in a very different manner than will be required when the model goes 'live'—and is expected to assess cases in the field or to inform actual decision-making. Construction data are assembled with the dual luxuries of time and patience. The data sources do not need to be kept current, since all predictive models are necessarily constructed using historical data. Static copies of the data are perfectly sufficient for these needs, and these copies can be easily moved to and assembled in a common location, even when they are sourced from multiple external agencies. The nuances of different network settings and database platforms can be painstakingly resolved so that all of the data sources exist in the same format, with common linking keys ensuring access between them all.

These same conditions are unlikely to exist in a live environment, and these differences can sharply limit the predictor variables that can be used within a forecasting solution. There often may be excellent predictors that can be calculated and used in the construction environment, but that would present enormous technical challenges to obtain in a real-time live forecasting. These situations present a dilemma. If the predictors from a challenging data source add novel and useful information for forecasting purposes, the difficulties and financial costs of connecting to a live version of the data may be necessary. In other situations, the reverse may be true.

For example, Philadelphia has developed a series of advanced risk forecasting models for its adult probation population (Barnes & Hyatt 2012; Barnes et al. 2012; Berk et al. 2009). Each of these models has been limited to local data, meaning that only offences that were committed within the city limits were available for use in calculating predictors. Geographically, however, the city of Philadelphia is rather small and it is surrounded by a number of populous suburban counties whose offending data were not available when the models were built. These conditions led to strong concerns that incoming probationers may have rather extensive criminal histories outside of Philadelphia, and that access to offending data from across Pennsylvania would make the forecasts more accurate. For construction purposes, it was rather easy to obtain a one-time static copy of statewide offending data for Philadelphia probationers, which allowed the research team to rebuild the model using these more extensive data. A comparison with the existing local model showed that adding offending data from outside Philadelphia produced only a token increase in predictive accuracy. The amount of technical work that would be needed to establish live access to the state database was extensive, and the modest improvements that would result were judged to be not worth the cost.

In preparing for algorithmic forecasting, it may be easier to deal with these data connectivity challenges in advance well before these kinds of dilemmas arise. Establishing inter-operability across different criminal justice data systems can produce numerous benefits, far beyond the utility this effort will lend to predictive modelling. And, for the purposes of predictive analytics, data pulled from external data sources can be profoundly important. A recent forecasting model developed to predict the reoffending of arrestees in Durham Constabulary (UK), for example, gained 5 percentage points of overall predictive accuracy by adding just a single predictor variable from police intelligence systems (Barnes 2016, 2017; Urwin 2016).

Data Storage Strategies. Anyone working with police data will eventually encounter a need for information that is unfortunately available only in free-text form. While some inventive strategies exist to pull useable data from free text, these approaches tend to be ad-hoc and often miss information that was not recorded in the expected manner. These problems tend to be most acute on older data systems, where adding new fields to the database is either expensive or impossible, and the user base eventually begins to develop 'workarounds' to record necessary information in whatever free text fields happen to be available.

For example, one correctional data system in the United States provides only a small number of fixed fields to store the results of urinalysis drug screenings, and each of these fields is devoted to a single specific substance (alcohol, cannabis, opiates, etc.). Over time, the agencies which use this system have expanded the number of substances in their screening panels, and are now testing for more substances than the database has room for. Since the database vendor is no longer supporting this version of the case management system, there is no way to create new fields to hold the data from the additional substance screenings, and these results are instead being manually typed into a 'comments' text field. This is both inefficient and promotes the creation of multiple types of errors.

In general, this approach works acceptably well for case management staff, who typically look only at a single offender's record at a time, and who can easily interpret the written comments of another human user. But for aggregate analysis, and especially for a big data approach to algorithmic forecasting, these results are exceedingly difficult to access and properly encode into machine-readable predictor values. As a result, none of the forecasting models developed for these agencies have been able to use prior drug test results to predict future criminal behaviour, despite the fact that this information might very well be strongly related to offending or relapse.

This kind of difficulty is not at all limited to older data systems. More modern police data systems frequently take a 'records management' approach to data storage, essentially allowing users to write freely, create their own data definitions, and upload external documents as needed in an effort to keep all available information in a single location. But for analytical purposes, information that is buried and available only within scanned PDFs files or uploaded word processing documents is all but completely inaccessible.

In several jurisdictions, potentially essential predictive information—such as risk screening documents completed at the scene of domestic violence incidents—are stored as uploaded files in this manner. In some case, the only available method to extract this information for analysis would be to employ data entry workers to read the scanned documents and enter the appropriate details into an entirely separate database. Obviously, such an approach would quickly become cost-prohibitive, especially when these values are needed in a live forecasting environment and must be made available as quickly as possible.

In preparing for a future of predictive analytics, police data systems may need to adapt. Law enforcement databases not only need to allow the viewing and management of individual cases, but also need to make these same data available in bulk for analysis purposes. Moreover, our relationship with database vendors may need to change. All too often, agencies purchase 'off the shelf' data products, and pay for only limited aftermarket support. Any desired changes to the database post-installation can be prohibitively expensive under these support contracts, and changes can become completely impossible once the contract expires. Agencies may be better off with in-house support who are capable and empowered to make data structure changes quickly and at no additional cost, and who can ensure that users do not need to result to free text and other workarounds that make analytical data impossible to obtain. Although the upfront costs may be higher, the retention of long-term, local control will likely avoid expenses and data quality issues over time.

2. Distinguishing Between Different Predictive Analytic Technologies

As predictive analytics become more common, the number of people engaged in this activity is continually expanding. As police professionals, it can be very hard to distinguish between the genuinely good opportunities and the consultant who is simply trying to sell a re-badged iteration of an old-school regression model that was first developed in the 1980s. Simply asking a few informed questions, however, can help separate the wheat from the chaff.

Was this forecasting solution developed elsewhere? When making most purchasing decisions, it is often a good idea for an agency to buy something that has a proven track record of success in another jurisdiction. This approach seems logical when acquiring police vehicles, body-worn cameras, uniforms, and protective equipment. In predictive analytics, however, the reverse is more likely to be true. Predictive models are very strongly tied to the data that were used to construct them. One real concern with these models is referred to as 'overfitting', which happens when a model does a fantastic job in predicting the outcomes presented within the construction data, but cannot adapt to new data that are pulled from a different time frame or location. Every predictive model will overfit to a certain degree, but most contemporary techniques provide ways to measure its impact and reduce its effects. When assessing overfitting, however, these techniques inherently assume that all of the predictor values are measured the same way, and will continue to be measured the same way in the future.

The key problem, of course, is that different agencies almost never measure things the same way. This is especially true for the historical data that are used to construct any predictive algorithm. Every police force has its own unique history with information technology.

One agency may have installed a new data system four years ago, but never transferred any of the data from the older systems onto the new one. Another agency may have two systems in place: a 'live' system that contains all of the data from six years ago to the present, and a static copy of an older database that is still available to view what happened prior to the newer system. A third agency may have been on the same data management system for 11 years, and was able to successfully convert 90% of data from its prior systems into the new one. Each of these histories will produce very different values when calculating a predictor such as an offender's age at the time of their first (recorded) arrest, and different extraction techniques will be needed in different places.

Other factors can also affect historical data. In Philadelphia, for example, the election of a new prosecutor (after 19 years of service by the previous one) produced vast changes in how criminal charges were laid against individual defendants. Different charging standards were applied, and different teams of attorneys were assigned to make these decisions. The result was a strong shift in the way that charged crimes were recorded, beginning in January 2010 and with several months of changes until full implementation was achieved.

No other city is likely to have experienced this same shift in charging standards at the exact same time as Philadelphia. It is therefore very unlikely that any predictive model developed in Philadelphia after 2010 would be directly transferrable to another location. Every jurisdiction has its own unique history of shifting standards and different recording systems, and will almost certainly get the best forecasting results if a bespoke model is constructed from local data.

How many predictors are used? Just a few decades ago, predictive modelling required a series of very finely-tuned decisions regarding the number and selection of the predictor variables that could be used to forecast the desired outcomes. There were limits on how many variables could be used, and there were strong requirements that none of the predictors were too strongly related to one another. The exact definition of which predictors were 'too strongly related' varied based on the methods being used and an array of statistical tests as the model was being built. Finally, the precise impact of any mistakes in making these decisions was often very hard to determine. Violating the core statistical assumptions of these regression models could often be safely permitted under some conditions, but could be rather disastrous in other circumstances.

Modern machine-learning methods, on the other hand, are typically much more forgiving. In many ways, these approaches are able to take a 'kitchen sink' approach to predictor selection. With the random forest techniques used to develop models in Philadelphia (Barnes & Hyatt 2012; Berk et al. 2016) and Durham (Barnes 2016, 2017; Oswald et al. 2017; Urwin 2016), for example, there is essentially no risk in adding an additional predictor. At worst, a new predictor will make no impact and will essentially be ignored, but its inclusion is very unlikely to reduce forecasting accuracy. Moreover, even predictors that have only a weak effect in the overall model may end up being quite important in specific sub-sets of the targeted population. The predictors that function best in forecasting the crimes committed by young urban property offenders may be quite different from those that are most important with the far-smaller subset of middle-aged rural sex offenders.

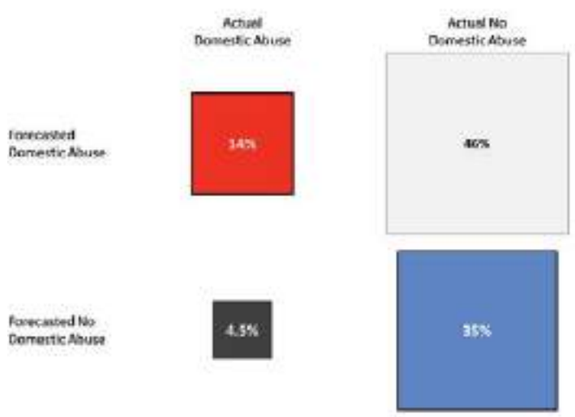
For these and a number of other reasons, there are clear advantages in being able to make use of many different predictors. Solutions that strongly limit the number of predictors are quite likely to be based on older technologies, and will probably not be able to leverage all of the complex relationships that can exist between different variables.

Does the solution allow natural relationships between variables? Older regression techniques often assume that the predictors and outcomes have a fixed relationship to one another. For example, many of these techniques assume that a linear relationship exists, and that every unit of change in one value will be linked to an exact and constant amount of change in another. Real life, however, rarely cooperates by falling so neatly on a straight line. Contemporary modelling methods, on the other hand, make no assumptions about these relationships and allow the data to naturally define how each predictor is associated with the forecasted outcome. These relationships often take the shape of rather complex curves, but these curves are likely a better match for natural reality than blind (or inferred) assumptions of a fixed and inflexible mathematical function.

Another crucial question is whether the predictor variables are allowed to have an inter-dependent relationship with one another. Most older forecasting technologies assume that all of the predictors are strongly related to the outcome that is being predicted, but are not related at all to one another. Newer machine-learning methods, such as random forests, make no such assumptions. Predictors can be related to one another, and can even exist in dependent relationships where a given variable is only useful when a number of conditions exist across other predictors. Again, this kind of approach appears, on its face, to be a better match for messy natural reality than simplistic assumptions that the predictors have little or no connection with one another.

Can the solution apply different costs to different kind of errors? Any prediction can produce (at least) two different kinds of errors. For example, Berk et al. (2016) produced a predictive model that was designed to forecast whether a newly-arrested Philadelphia domestic violence offender will be re-arrested for another domestic violence offence within the next two years. For each offender, this model can make one of two different forecasts: (1) that the offender will produce a new domestic offence during this two-year period, or (2) that the offender will not produce any new domestic offences. These forecasted outcomes can then be overlaid with the actual observed outcomes that these offenders produce over the follow-up period, forming something known as a 'confusion matrix' that details both the accuracy and the errors of these forecasts. The confusion matrix for this particular model is shown in Figure 1, simplified somewhat from the original version.

Figure 1: Confusion matrix for the domestic violence forecasting model produced by Berk et al. (2016)



In this figure, the accurate predictions are contained within the red and blue boxes. In these cases, representing 49% of all forecasts, the outcome predicted by the forecasting model matches what actually happened during the 2-year follow-up period. The two grey boxes represent the two different kinds of errors that can occur within this forecasting model. The larger, lighter-coloured box (46%) contains all of the false positive errors, where the model predicted that new offending would take place (a 'positive' prediction), but in fact no new crimes occurred. The smaller, darker box (4.5%) contains the false negative errors. In these instances, the model predicted the total absence of new offending (a 'negative' prediction), but these offenders went on to commit at least one new domestic violence offence.

The crucial thing to understand about this model is not its overall level of accuracy, which likely seems somewhat unimpressive at just 49%. Instead, the most important aspect of these results is the ratio in size between the lighter (46%) and darker (4.5%) grey boxes. In this model, there are almost exactly 10 times as many false positive errors as compared to false negative errors.

This ratio of 10-to-1 is no accident. It was an intentional part of the model's design, and reflects a decision that each false negative error (i.e., missing someone who will actually re-offend) is 10 times more costly than a false positive (i.e., predicting that someone will re-offend when they actually will not). Since false positives have only one-tenth the cost as false negatives, they occur ten times more often.

At least some modern machine-learning techniques, such as random forests, allow us to apply these differential costs to different kinds of errors. They allow us to specify not only which error we most want to avoid, but exactly how rarely we would like these errors to occur compared to alternative forms of error. Older regression models, and even some advanced predictive approaches, take a contrary perspective. These techniques treat all errors as being equally problematic, and attempt to maximise the overall predictive accuracy by reducing the total number of errors.

In criminal justice settings, however, some errors will almost always be seen less desirable than others. Generally speaking, we typically prefer to make cautious errors (where we over-estimate the actual level of risk) as opposed to dangerous ones (underestimates of actual risk). The exact cost ratio will vary from solution to solution, providing yet another reason why models work better when they are tailored to local conditions than when they are developed elsewhere and then deployed in many varying circumstances. For this particular model, the cost ratio was set at 10-to-1, but this value is infinitely adjustable and would likely be different—perhaps even reversed—in other contexts.

Given this 10-to-1 cost ratio, however, it is possible for us to re-assess the accuracy of model produced by Berk et al. (2016). The question no longer needs to be seen as how accurate the model is in an overall sense (a somewhat uninspiring 49% of all predictions), but how well the model avoided making the least desirable form of error (false negative), which occurs only 4.5% of the time. Among the sub-set of forecasts where the model predicts that no re-offending will take place (i.e., 4.5% + 35%), the forecast is correct 89% of the time.

In this sense, the model performs quite well in both producing accuracy where it is most desired, and in distributing the error types in a way that matches the costs associated with them. This ability to apply differential costs to errors is likely to be an essential element to algorithmic forecasting in policing, and approaches which are unable to take costs into account will likely have only limited utility for our purposes.

3. Ethical Concerns regarding Algorithmic Forecasting within the Legal System

Although advance warning of criminal behaviour clearly provides many benefits for policing, it does come at a cost. Numerous concerns have been raised in both the popular press (Angwin et al. 2016) and scholarly writings (Harcourt 2008; O'Neil 2017; Starr 2014) concerning the use of forecasting within the criminal justice system, and its potential reinforcement of existing social biases. We must be clear about these risks. Even the most advanced predictive analytic techniques cannot currently correct for the fact that many of the outcomes that we would most desire to forecast—violent recidivism, domestic victimisation, and geo-temporal crime patterns, to name just a few—are currently recorded in a way that reflects historical trends and potentially systematic biases regarding racial groups and underprivileged neighbourhoods. If the source data reflect a disproportionate distribution of these outcomes, then the predictions based on these data will almost always reflect the same distribution.

In many ways, these models simply cannot function in any other way. If the majority of recorded violent recidivists come from a specific racial or ethnic category, a predictive model for this kind of reoffending would not be doing its job if its forecasts did not reflect the same distribution of outcomes. This statement remains true even when more controversial predictor variables, such as race and postcode, are excluded from the model, leaving the algorithm with no direct information on the ethnic origin of the offenders in the data. A good model will continue to reflect the actual distribution of its targeted outcomes.

Even though this connection between (potentially biased) source data and forecasted outcomes is largely impossible to avoid, that does not remove the obvious disquiet that stems from any disproportionate distribution in the forecasted risk groups. Why should the community accept the use of a forecasting model which, by all appearance, seems to perpetuate the existing biases within the criminal justice system?

The exact path towards community acceptance of these techniques currently remains unclear, but the ethical implications of forecasting within policing need to be considered well before an agency begins to pursue predictive analytics.

Oswald et al. (2017) suggest one possible framework to guide agencies on the ethical deployment of algorithmic assessment tools in the policing context, referred to with the acronym ALGO-CARE. This framework suggests that any forecasting solution should meet each of following criteria:

A – Advisory. The forecasting tool should only support normal officer discretion rather than replacing it. Model forecasts should not be the only factor considered in making decisions.

L – Lawful. The algorithm's use and construction should be considered against the legal principals of necessity, proportionality and data minimisation.

G – Granularity. The data used to build the model should avoid common problems in data analysis, such as the compatibility of data from disparate sources, missing data, and inferencing.

O – Ownership. Police agencies should own the models that they use, and should avoid proprietary contracts that might preclude disclosure of the algorithm's inner workings.

C – Challengeable. Agencies should consider whether individuals and their legal advisors ought to be notified whenever forecasting is used, and should publicly present regular validation of the model's forecasts.

A – Accuracy. The stated accuracy of the algorithm should be validated periodically, and the potential consequences of inaccurate forecasts should be made clear. Agencies should also consider producing a written justification for any error cost ratios used to construct the model.

R – Responsible. Ethical considerations, spanning wider concerns than legal compliance, should be factored into decision-making concerning the algorithm. An external ethical review committee incorporating independent members could be established for this purpose.

E – Explainable. The agency should be able to explain the methods used to build the algorithm, including the selection of predictor variables and the targeted forecasted outcomes. If necessary, 'expert witness' testimony should be made available for any court proceedings which question the forecasts.

Regardless of whether our agencies are able meet all of the obligations under the ALGO-CARE framework, it is in our obvious best interests to consider each element before deploying any kind of forecasting solution. These techniques have enormous potential, but they do present genuine risks. Law enforcement systems will not and should not be held to the rather weak ethical standards that govern commercial uses of predictive analytics. By employing the best data available, asking challenging questions to those who seek to build these models, and by deploying them in a transparent and ethical manner, predictive analytics can enter into policing with the greatest chance of success. These tools are simply too powerful to risk deploying them any other way.

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International Women & Law Enforcement Conference

Inspector Scott McLaren, Professor Lorraine Mazerolle and Assistant Commissioner Debbie Platz

In September, Queensland hosted the 2017 International Women & Law Enforcement Conference. The conference theme, *Global Networks: Local Law Enforcement,* was chosen to emphasise the importance of cooperation and partnerships between law enforcement agencies and the communities that they police, irrespective of where they are around the globe.

The conference also provided a perfect opportunity for Australasian police and law enforcement partners to join the global policing community to highlight the importance of women in policing and learn from the experiences of international colleagues.

Deputy Commissioner Stephen Brown from WAPOL and Chair of the ANZSEBP facilitated a panel discussion with Assistant Chief Constable Alex Murray, Dr Cynthia Lum and Dr Chris Koper on Evidence Based Policing to the entire conference assembly. This panel discussion provided an opportunity to 'normalise' the science of evidence based policing within a larger international targeted audience and to demonstrate the applicability of it to policing through the shared experiences of Alex, Cynthia and Chris and the work they have piloted within evidence based policing.

On the second day of the conference Dr Cynthia Lum and Dr Chris Koper provided an overview on the Evidence-Based Policing Matrix, that she developed with Chris and Cody Telep. Cynthia provided an insight into her own experiences as a Baltimore detective and the benefits that experimental research delivered to local policing problems.

Chris gave participants an overview of the translation tools, designed to help police practitioners incorporate research into their strategic and tactical portfolio as well as the pioneering work he completed on hot spots policing, including development of the "Koper curve" principal of hot spots patrols.

The conference participants also benefited from the presentation by Assistant Chief Constable Alex Murray of West Midland Police and founder of the Society of Evidence Based Policing. Alex spoke around his experiences in working with community advocacy groups in developing violent crime initiatives in local neighbourhoods within West Midlands.

Alex also provided officers attending the plenary with an insight into work he has done within other law enforcement and policing agencies around perception, procedural justice and preventing extremism within

communities. Many of the participants had a "lightbulb moment" when they realised the impact evidence based policing could have on efficiency and the resource constraints shared by all policing agencies.

Professor Lorraine Mazerolle was also invited to facilitate several of the University of Queensland's highly regarded Evidence Based Policing Workshops at the conference over two sessions. The workshops were co-facilitated by Alex Murray and afforded participants the unique opportunity to learn from some of the leading minds in the field of evidence based policing. A wide and varied group of approximately fifty officers from around the world, including both operational and senior leaders from policing agencies in Africa, Jamaica, Fiji, Pakistan, Canada, Australia and New Zealand attended the workshops.

The Evidence-Based Policing Workshops were developed to build capacity for police to "own" the science. The Cairns workshops reinforced the teachings provided Cynthia, Chris and Alex so that officers gained an appreciation on how to run experimental research evaluations. Lorraine, Alex and a number of other staff from UQ and QPS carefully lead officers through specific and relevant problems that challenge their own policing agencies. The officers eagerly took part in the table discussions, proposing scientifically sound randomised controlled trial (RCT) with the aim of developing them into a real life experiment upon return to their agency.

'It was a great experience to be part of the workshops and see the birth of future experiments which I am sure will contribute to best practice policing into the future.' Federal Agent Martia Muller, AFP Cairns.

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The Australia & New Zealand Society of Evidence Based Policing (ANZSEBP) is a police practitioner-led society, formed in April 2013 in Brisbane, Australia. The mission of the ANZSEBP is to develop and disseminate scientific research ('the evidence') and advocate for police to use it to guide best practice in all aspects of policing. The ANZSEBP Chairperson serves on the Executive Board of the British Society of Evidence Based Policing, ensuring that the ANZSEBP works collaboratively with international police practitioners and experts to advance evidence based policing.

The Society is made up of police officers, police staff, and research professionals, who aim to make evidence based policing practice part of everyday policing in Australia and New Zealand. The Society advocates that all aspects of policing, including police patrols, investigations, crime prevention, human resource management, and all other forms of service delivery, should be evaluated using sound, scientific methods.

Using Social Media to Inform, Engage, and Evaluate Public Responses to Policing Strategies

Lorelei Hine, Monique Lynn, Sarah Bennett and Michael Newman

Abstract

This paper addresses the Queensland Police Service's randomised controlled trial of the Mobile Police Community Office (MPCO), conducted from November 2014 to February 2015. The MPCO is a vehicle that allows police to conduct most station activities from various locations. An important component of this trial was its use of social media to foster engagement with the police. This paper analyses comments on three types of Facebook posts: 'Blue's Clues', which utilised a riddle and prize to encourage the public to visit the MPCO at its crime hot spot deployments; a post on the 31st December, 2014 wishing the community 'Happy New Year'; and a post asking patrons to complete a survey that gauged the public's perceptions of police, crime in their community, and the MPCO itself. Results suggest that posts that garner the greatest public engagement via comments are those that invite dialogue and feedback. This paper provides an evidence-based understanding of how police can better engage with the public through social media when evaluating the impact of policing strategies. It concludes with recommendations for future research and police practice.

Background

Evidenced-based policing (EBP) has become an important approach for informing policing practice in consideration of strategic goals, finite resourcing, and technological innovation (Sherman 2013). Through empirically collecting and testing evidence during policing interventions, EBP guides practice using robust evaluations of 'what works' or does not (Sherman 2013). This paper evaluates the Queensland Police Service's (QPS) randomised controlled trial of the Mobile Police Community Office (MPCO) and the effectiveness of its primary objective, fostering community engagement.

The MPCO was trialled in the North Brisbane District in Queensland, Australia and involved the deployment of a purpose-built vehicle through which police conducted many regular station activities[1]. To increase the public's awareness of the MPCO and to encourage involvement, the QPS posted riddles on social media, guiding the public to the vehicle's location and invited the public to provide survey feedback. In this paper we explore the public's engagement with the MPCO on social media and suggest how it can be used as a tool for understanding community responses to police initiatives.

Social media has rapidly developed over the past decade, with over 82% of Australians currently connected to at least one online network (Stratton et al. 2016). Facebook dominates the Australian social media market, and the site records over 1.59 billion users daily (Israni et al. 2017). Many organisations, such as the QPS, utilise social media to engage with the public (Bird et al. 2012; Queensland Police Service [QPS] 2011). The popularity of social media has fundamentally changed how people interact with each other and their communities, including a shift from the physical world to online spaces (Lowry et al. 2016; Stratton et al. 2016).

For police, this era of social media can create opportunities for members of the public to communicate with them (Crump 2011; Smith et al. 2017). The ability for one Facebook post to reach potentially hundreds of people also provides a rapid, cost-effective, and efficient means to engage citizens from a diversity of backgrounds (Grimmelikhuijsen & Meijer 2015; Smith et al. 2017). The design of platforms like Facebook as two-way communication devices further allows for the public to converse with police in an informal setting and is another means of alerting police to community concerns (Crump 2011; Meijer & Thaens 2013).

Police worldwide have recognised the potential to use social media to positively engage with members of the public and foster involvement with police initiatives (Meijer & Thaens 2013). In the UK, social media strategies state that posts should be designed to encourage public engagement and interactivity by including pictures and content for discussion (Crump 2011). Some evidence suggests that the public are eager for police to use social media in ways that encourage participation, with Copitch and Fox (2010) arguing that this facilitates meaningful community engagement. Despite researchers encouraging police use of social media as a participatory device in addition to a means of disseminating information, there is limited research to suggest which type of social media posts lead to greater community engagement (Crump 2011; Ruddell & Jones 2013).

Utilising Social Media Data to Evaluate Interventions

Police use social media to engage with the public, appeal for information, seek support for neighbourhood watch programs, and communicate important messages during emergencies (Crump 2011; Milivojevic & McGovern 2014). This technology can also serve as a tool to collect and examine evidence regarding the public's response to policing initiatives. Police departments are increasing their online presence and complementing real world interventions with social media campaigns (Copitch & Fox 2010; QPS 2017). Research is yet to establish how to utilise social media data as evidence to evaluate initiatives and gain understanding of the public's perception of them. The need for research in this area was acknowledged in the President's Task Force on 21st Century Policing (2015); this document emphasises that claims regarding social media's positive influence upon crime control and community relationships have yet to be empirically tested.

Through investigating the public's engagement with Facebook posts distributed during the MPCO trial, this paper contributes to our understanding of how to effectively utilise social media as a tool for evaluating policing interventions. We address the following questions:

1. What was the level of social media engagement with the MPCO?
2. What thematic trends were seen on the MPCO Facebook posts?
3. What are the characteristics of posts that attract the least and most number of comments?

This paper first describes the MPCO and methods used for analysis, followed by results and discussion of how social media can be a valuable tool for police to understand public perceptions of, and engagement with, police initiatives.

Case Study

The MPCO is a QPS-led policing initiative to increase community accessibility of police resources. It is a purpose-built high visibility vehicle from which police can conduct most station activities. Advantageously, it can be directed to areas where people have limited access to a police station (e.g., remote communities) and because it is mobile, it can also be directed to areas requiring additional police resources or presence (e.g. a crime hot spot).

The MPCO is different to other police vehicles in that it is not simply a command centre, but rather an office accessible to the public. It aims to foster community engagement and crime reduction through procedurally just police–public encounters through having all MPCO officers complete a QPS-developed procedural justice training module, with the results of these encounters suggesting this was successfully operationalised (Bennett et al. 2016).

A randomised controlled trial of the MPCO was conducted between November 2014 and February 2015 at 26 North Brisbane hot spots. Each deployment of the MPCO was staffed by a managing Sergeant and officers from the local area. Results suggest that the MPCO had a positive but not significant impact on reducing crime (Bennett et al. 2017). Additionally, in experimental sites, people who visited the MPCO and/or worked or lived in the area reported high perceptions of police legitimacy and the MPCO itself (Bennett et al. 2016).

The QPS promoted 15 of the hot spot deployments to the public via social media platforms including Facebook, Twitter, and the MyPolice Blog. As part of the evaluation, the University of Queensland (UQ) researchers explored social media data to further examine the public's interest and engagement with the MPCO.

Methods

A key element of the MPCO trial was to explore how social media could be used to inform and engage the public as this mobile public resource moved to 15 locations. Specifically, posts were made on social media to:

1. Inform the public of where the MPCO would be deployed and for how long
2. Educate the public on the purpose of the MPCO and how it may assist them
3. Encourage the public to approach and engage with the MPCO officers/services by offering an incentive (prize) to the first person to visit the vehicle and mention the social media post.

The day before each deployment of the MPCO, the QPS media team published a blog post on the MyPolice Blog, which was shared to the QPS Facebook and Twitter. A second post was published the following day when the MPCO had been deployed. Posts were generally published before or after normal work hours. These posts were called 'Blue's Clues' and included three key elements: a riddle hinting at where the MPCO was situated for each hot spot deployment, a picture of the police vehicle Lego set which served as the prize, and a hyperlink to the MyPolice Blog.

As part of the evaluation, Facebook was also utilised to invite people to participate in an online survey that gauged the public's perceptions of police, crime in their community, and the MPCO itself. An additional message was published on the QPS Facebook page on 31st December, 2014 wishing the public a safe and happy New Year.

Data Collection and Analysis

This paper uses data collected from Facebook. In mid-2015 after the trial had concluded, a UQ research assistant collected data for each post. These descriptive data have been used to give a sense of the number and nature of comments and the extent to which people 'tagged' their Facebook friends in comments to bring these posts to their attention. Comments were collected for all 'Blue's Clues' posts, and the survey and New Year's Eve (NYE) posts. In instances where two QPS posts were made for a hot spot, comments from both posts have been combined.

To gain insights from these data, the comments were de-identified and imported into the qualitative analysis software NVivo. The word map function was used to provide a visual representation of the data. Word size represents frequency, with larger words more commonly used and smaller words only appearing a few times. Thematic analysis of the comments then provided context to the word map in the form of more in-depth themes.

A key consideration when exploring social media data is that comments are made on a publicly visible forum where users' Facebook account names are displayed and are thus easily viewed by any Facebook user. All user names were removed during data collection, with the research team remaining observers by not participating in commenting activity.

Results

How many people engaged in comments on Facebook?

Facebook posts associated with this trial yielded 1,127 comments (see Table 1). Approximately 59.36% (n = 669) of these comments were made on posts regarding the location of the MPCO vehicle. The remainder were made on the NYE (n = 333) and survey (n = 125) posts. The NYE post garnered the highest percentage (29.54%) of comments out of all posts.

A number of people also repeatedly engaged with posts, with 125 users commenting more than once on the same post and 82 users commenting on more than one post. There were 173 instances where a user 'tagged' one or more Facebook friends in comments.

Table 1

Comment Activity	*n*	%
Comments on all posts associated with MPCO trial	1127	–
Comments on Hot Spots posts	669	59.36%
Comments on NYE post	333	29.54%
Comments on social media survey post	125	11.09%
People who commented more than once on a single post	125	11.09%
People who commented on more than one post	82	7.28%
People 'tagged' in comments	173	–

Note: The percentage of people 'tagged' in comments is not shown due to instances where multiple Facebook users were tagged in the one comment.

Figure 1

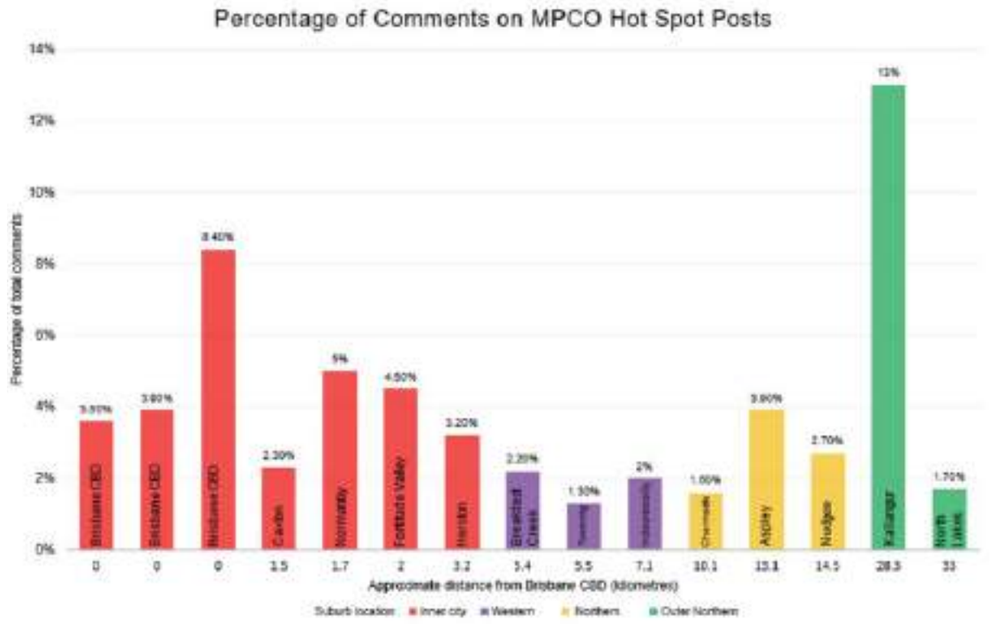
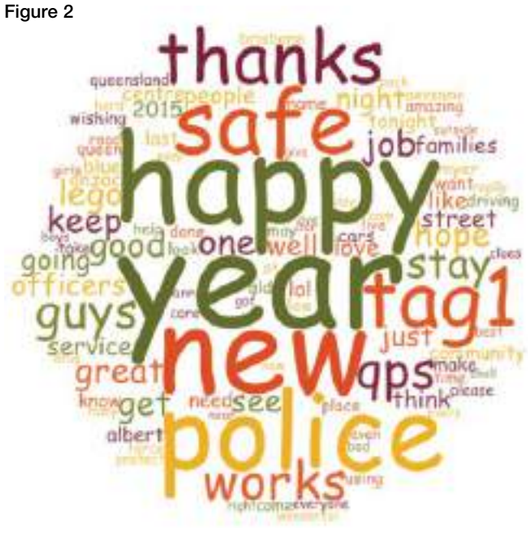


Figure 1 shows the total number of comments per Facebook post for all hot spot deployments. The post with the most comments was associated with the outer northern suburb of Kallangur (n = 146, 13% of all comments). The three western Brisbane suburbs received far fewer comments, each yielding <25 comments. One northern suburb, Chermside, also received similarly low comments (n = 18).

What do people say?

As the word map in Figure 2 shows, many people used the comments on the QPS posts to wish both the QPS and the public "Happy New Year". There were 253, 221, and 220 uses of the words 'happy,' 'new', and 'year' respectively. This coincides with the finding that the NYE post had the most comments of any post during the trial (n = 333).

Figure 2



The next most common words include police (n = 191), safe (n = 157), comments where a user tagged one of their Facebook friends (coded as "tag1") (n = 141), thanks (n = 128), works (n = 91), QPS (n = 89), and guys (n = 85).

Comments on the Facebook posts for this trial spanned a diversity of topics. Many people joined in on the game to solve the riddle, locate the vehicle, and potentially claim the prize. For example, this commenter dissected one of the riddles for a deployment located in Brisbane CBD:

> *On the corner of Twilight's wonder (Twilight Movie) – Edward Street. Meeting the diary of the little girl (Diary of Anne Frank) – Ann Street. Where women glow and men plunder – (I Come from a Land Down Under) – Down Under Bar.*

Some expressed interest in the Lego prize in particular, stating that it was a great method through which to gain public interest in the trial. As identified in Table 1, there were many instances (n = 173) where users tagged their Facebook friends in comments.

This served to widen the engagement and reach that QPS already has with the public, as it exposed non-followers of the QPS Facebook page to these posts. The excerpts below are three examples of such comments:

> *[Tagged two Facebook friends] can you get there after school tomorrow? I think it's on the corner closest to me*
>
> *Hey [tagged Facebook friend] ...Police Lego, get on it!*
>
> *You had me at #legoman. Good use of Lego. #QPSFacebook*

The highest level of online engagement resulted from posts that directly sought the public's interaction and input. The NYE post elicited many comments wishing the police 'Happy New Year' in return to their well-wishes. There were many positive messages left on this post:

> *Thanks to all the men and women … who protect us every day. Your families should be proud of who you are what you do. Happy New Year. I hope 2015 sees that all of you make it home to your families.*

The other post that asked the public to actively engage in conversation with the QPS asked followers to complete the survey. This requested direct feedback and created a space for online dialogue regarding the MPCO trial and the police, and their operations. Many of these comments praised the QPS, for example:

> *I think the police do an outstanding job for all the criticism they cop. People don't see them when they are on a job like a suicide or bad accident. The things they have to deal with is unreal how they do and stay sane it is just amazing.*

Others suggested ideas for operational improvement or voiced problems that they had experienced or identified within the QPS. These were negative comments about both the QPS itself, such as perceived non-response to incidents, and larger systematic problems with policing and the criminal justice system. Some Facebook users also voiced community crime concerns that they felt were not being adequate addressed. One user shared their opinion of police:

> *Police are important yet largely indifferent to what the public thinks. The police consider themselves above the law and when they've done wrong, they have a farce complaints process that protects them instead of reprimanding them. The police are a reactive force responding to crimes already committed but incapable of actually protecting us. They have a tough and dangerous job, which they have chosen, leading them to believe they have special powers that place them above and apart from the civilian. They patronize and intimidate, instead if providing safety and security.*

Discussion

Results show that the offer of the Lego prize and the 'tag' function on Facebook were useful tools in promoting engagement with 'Blue's Clues' posts. 'Tagging' is a common phenomenon which spreads the social reach of each post as followers of the QPS page invite Facebook users who may not have seen the posts to view this content (Lowry et al. 2016). Thus, posts reach a broader audience of users who may not have signed up to receive information from the QPS page. Although outside the scope of this study, this has the potential to result in more Facebook users signing up to receive information from the QPS Facebook, therefore engaging more members of the public and increasing users' sense of community (Oeldorf-Hirsch & Sunder 2015).

Posts which garnered the greatest number of comments from the public were those inviting dialogue and feedback (Brainard & Eldins 2015). This includes the NYE post, which is hypothesised to have received a high amount of comments because it expressed well-wishes to the community on a celebratory day. This post resulted in many comments reciprocating the QPS's positive sentiments and expressions about the police service.

Many comments were made on the survey post, in which the public were invited to share opinions on the MCPO and QPS. Analysis revealed that many left comments about their opinion of the QPS, crime in their neighbourhood, and experiences with police. This suggests police Facebook posts can achieve greater interaction when designed to promote feedback and discussion. This aligns with previous social media research that shows that posts only intended to impart information will garner less public interest than those which encourage dialogue and public opinion (Copitch & Fox 2010; Crump 2011). Additionally, as Facebook is an online public realm, community members may perceive that police are obligated to respond to comments for fear of backlash or scrutiny (Denef et al. 2013).

There was a stark contrast in the type of online engagement between the 'Blue's Clues' and NYE/survey posts. The public were less interested in physically locating the police vehicle and engaged more in expressing their opinions about police and policing practice in an online public realm. It is hypothesised that feedback-centred posts had greater community engagement as they presented a novel opportunity where public were invited to interact with police and voice their opinions less formally than during official feedback processes (Davis et al. 2014; Meijer & Thaens 2013).

Limitations

Due to the nature of Facebook, posts can remain online until removed, allowing the public to make commentary potentially months or years after originally posted. The data for this study were collected in mid-2015. Although unlikely, there is the potential that comments have been made since this date. Further, this paper did not explore how many people saw the posts but did not comment, nor did it report on the number of Facebook users who 'liked' the posts. In combining the comments for two posts regarding the same MPCO location, this study was also not able to assess whether the content and timing of posts affected commentary. While these analyses were beyond the scope of this paper, including this additional data may provide further insight into online community engagement.

Conclusion and Recommendations

Social media is a significant communication platform that is used by the majority of Australians (Stratton et al. 2016). The findings of this study support previous research that demonstrates that social media can be purposefully used by police to update and engage the public. This study, however, explored the intentional use of social media to inform the evaluation of public responses to a new policing initiative – the MPCO. Specifically, Facebook can serve as another tool for community engagement for the police, with posts that invite dialogue receiving greater public commentary. As a 'vehicle' to engage the public, social media served three purposes: to inform people where the MPCO would be located, encourage engagement through the use of 'Blue's Clues,' and provide a forum for understanding public perceptions of police.

Considering these results, when implementing social media campaigns with the goal of community engagement, it is recommended that police and their media teams:

1. Design content that encourages ongoing interaction, including utilising community events, holidays, and policing trials for conversation and engagement
2. Use short, simple, and meaningful posts to encourage feedback. For example, the survey post for the MPCO read:
   UQ and QPS are exploring what people think about police, crime in your community and the Mobile Police Community Office. TELL US WHAT YOU THINK.
3. Continue to engage with the public's commentary, both positive and negative, to keep lines of communication transparent and open.

In terms of research into police use of social media, future studies should:

1. Develop evaluations of social media use to engage the public to contribute to online EBP initiatives. This includes developing precise measures of social media as an evaluation tool.
2. Explore differences observed in online engagement from people living in rural/regional versus metropolitan areas
3. Investigate the impact that different styles of posts have upon online community engagement and public perceptions of police
4. Explore how social media can reach populations who may have negative policing experiences
5. Investigate differences observed between different social media platforms.

Through evaluating the comments made upon the QPS MCPO Facebook posts, this paper has provided an evidence-based understanding of how police may better engage with the public through this medium for evaluating the impact of policing strategies. Utilising Facebook as a platform to encourage discussion and informal feedback on the police, their practices, and interventions can result in greater levels of community engagement.

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End Notes

1. Previous papers report the impact of the MPCO on crime, crime harm and perceptions of police legitimacy (see Bennett, Newman & Grey 2016; Bennett, Newman & Sydes 2017).

When the Full Moon Rises over the Sunshine State: A Quantitative Evaluation of Queensland Police Calls for Service Relating to the Full Moon—2004 to 2011

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Abstract

Police officers are amongst the strongest believers in the lunar hypothesis—the belief that the full moon affects human behaviour, yet most research fails to support this proposition. When the ***Full Moon Rises Over the Sunshine State*** *examined eight years of calls for service data from a large metropolitan policing district in Brisbane, Australia. Between 2004 and 2011 data from more than 908,000 service calls were examined to determine if police received more requests for service during the full moon. The study found no support for the lunar hypothesis. It concluded that there was no statistically significant relationship between calls for service and the full moon.*

Keywords: *Full moon, police administration, criminal justice planning, myths, management, Queensland, Australia*

Background

As a long-serving police officer arrived at work to commence another week of night duty, a feeling of foreboding overtook her when she caught a glimpse of the full moon. Similarly, after the sixth patient walked into a city hospital's emergency department seeking opiates, and the third 'code blue' for the evening was announced over the hospital's public address system, a triage nurse was heard to mutter, 'Damn! It must be a full moon tonight' (Iosif & Ballon 2005, p. 1498). 'When I joined the police, the old blokes used to say, "Full moons and brass bands bring out the crazies.' I don't know about the brass bands, but experience has shown the full moon aspect is true. It's just something every copper knows" (Hoctor 2009, p. 56).

Seasoned health care workers, police and other public officials who deal with the troubled public, certainly present an anecdotal case for the predictability of disturbed behaviour patterns at the time of a full moon. While such beliefs on the part of members of this fraternity are widely held, and engrained in organisational culture, the academic and scientific community is ambiguous in its support (Calver et al. 2009). Some researchers back the hypothesis that there is a celestial effect of the moon on human behaviour, whereas others are less than supportive (Rotton & Kelly 1985). Trivial? Perhaps in some way it is, but it is common knowledge that police jurisdictions deploy more officers based on calls for service data. By way of example, weekends are busier, so departments roster extra crews and/or patrol cars accordingly; there is less need for administrative support on weekends, so non-sworn personnel are rostered off.

Introduction

Examining the lunar hypothesis that human behaviour is affected by the full phase of the moon takes one on an interesting journey through time. The earliest recorded account of this belief can be found during the Hippocratic period, circa 400 BC (Cooke & Coles 1978). The belief that people become *lunatics,* or that unusual behaviour or events manifest more frequently when the moon is full, hereinafter referred to as the *lunar hypothesis,* has been the subject of some research, but much discussion. References to the moon affecting human behaviour are common in the worlds of popular culture, academia, as well as the arts. In the late-1960s, the American rock band Creedence Clearwater Revival warned of a 'bad moon rising' (Fogarty 1969). And in the 1970s the Jackson Five advised, 'don't blame it on the moonlight' (Jackson 1978).

While some researchers have disputed the validity of the effects of a full moon (Crowe & Miura 1995; Owens & McGowan 2006; Russell & Dua 1983), there are others who have identified a link (Cohen-Mansfield et al. 1989; Purpura 1979; Tasso & Miller 1976; Templer, Veleber & Brooner 1982; Thakur & Sharma 1984). It would seem that there are no definitive answers. There is an organisational-based discourse within the respected professions of psychiatric nursing, policing, and emergency medicine, all supporting the lunar hypothesis (Calver et al. 2009; Rotton & Kelly 1985) and the topic has held academic and public interest for a considerable period.

In dismissing the beliefs of mental health professionals, police, and emergency workers, some researchers rationalise the anecdotal evidence as an illusory correlation: the tendency to overestimate a relationship between two variables where, in fact, none exists (Gorvin & Roberts 1994). Attributing beliefs of a lunar effect on human behaviour is like grounding such a position in little more than the tapestry of folklore associated with the topic (Bickis, Kelly & Byrnes 1995, p. 701).

Rationale

While the lunar hypothesis had been the subject of scholarly investigation prior to the 1970s, it was the pronouncement by Lieber and Sherin (1972) of a link between the full moon and homicide that appears to have piqued academic curiosity. So, during the 1970s and 1980s, research was conducted in an effort to determine whether the phases of the moon had any influence upon human behaviour (Campbell & Beets 1978; DeVoge & Mikawa 1977; Garzino 1982; Purpura 1979; Rotton & Kelly 1985; Snoyman & Holdstock 1980; Tasso & Miller 1976; Thakur & Sharma 1984). This research continued during the 1990s and 2000s (Alonso 1993; Gutierrez-Garcia & Tusell 1997; Iosif & Ballon 2005; Kuss & Kuehn 2008; Mathew et al. 1991; Stolzenberg et al. 2016; Sugama et al. 2008; Vance 1995).

By comparison, Australian-based research has been almost non-existent. While there was an historical lunar examination of attempted suicides in Australia in 1972 (Taylor & Diespecker 1972), and there was an examination of violence and aggression across five psychiatric hospitals in Sydney in the late-1990s (Owen et al. 1998), there has been a scarcity of Australian research until a study of hospital-based violence was conducted by Calver et al. (2009).

While Calver et al. (2009) shed some light on the lunar hypothesis in an emergency medicine context, Australian scholarly research on the lunar hypothesis in a policing context has remained wanting.

Moreover, the research that was conducted from other parts of the world predominantly used crime as the dependent variable (Cohn & Rotton 2000; Forbes & Lebo 1977; Lieber & Sherin 1972; Schafer et al. 2010; Thakur & Sharma 1984).

The anecdotal evidence by police officers acted as a catalyst for this study to explore the hypothesis that there is a greater demand for policing services during a full moon. The findings could have implications for the way police administrators allocate resources, plan police deployment, and funding for increases in police personnel and support services.

Theory

In respect of the lunar hypothesis, it is argued that there are two dominate theories, yet both are attenuated by a paucity of rigorous scientific investigation. The two theoretical positions this paper puts forward are termed gravity (i.e., human tide) and luminosity. Scholars appear to have been content to examine the lunar hypothesis for close to a century (Cooke & Coles 1978), more intent upon identifying or quantifying lunacy, than identifying causes associated with the phenomenon. By way of example, Barr (2000) lamented that a change to this situation was still some time away:

> Researchers do not agree on exactly what effect they are looking for or whether it is only likely to occur in certain individuals. These problems stem from the absence of a widely accepted theoretical base which could account for any supposed lunar effect on [subjects]. Unfortunately, there is little sign this situation will change in the … future (Barr 2000, p.33).

With the two theories—gravity and luminosity—display varying degrees of scientific credibility sufficient enough to encourage an observer to reconsider or suspend immediate dismissal of the lunar hypothesis, there are other scientific facts that contradict these theories. Mathematical formulae are used to calculate and quantify the additional forces of gravity experienced by a person at the time of a full moon. Likewise, comparisons can be made between full moon luminosity and common events that make support for either theory problematic at best.

Rotton and Kelly (1985, p. 289) brought science to bear on the lunar hypothesis by noting that the gravitational effect of the full moon upon a person is the equivalent of that exerted by a drop of sweat or a flea upon the person's skin. Additionally, they point out that the earth's gravitational pull upon a person is 5,012 times that exerted by the full moon, yet no behavioural phenomena are attributed to such a force (Rotton & Kelly 1985, p. 289).

When examining luminosity, Rotton and Kelly (1985, pp. 288–289) assert that the light from the sun is many thousands of times more powerful than that of the brightest full moon, and that the light from a standard light globe provides up to 70 times as much luminance as that of a full moon, yet no effect upon human behaviour is routinely attributed to either, in contrast to that attributed to the full moon. At a time when people spend between 75% and 90% of their time in indoor settings (usually under lights), Rotton and Kelly (1985, p. 288) challenge the validity of any possible effect that moonlight may have upon human beings.

When considering the amount of light given off by the full moon, there are other interesting statistics to take into account. For example, a cloudless full moon night is 250 times brighter than a new moon night (Kruszelnicki 2012, para. 12), and 12 times brighter than the first quarter or last quarter phases of the moon (Rotton & Kelly 1985, p. 288). Having said that, it must still be borne in mind that, even at full moon, the luminosity level is a quarter of that given off by a candle (1985, p. 289).

Further scientific facts contradict the basis of the human tides theory. When discussing the theory, Kruszelnicki stated:

> This so-called 'theory' is wrong in a few ways. First, the moon-tides thing happens because the oceans are large, and made of a liquid. They would still happen if the liquid was freezing liquid hydrogen, room temperature mercury, or hot liquid iron. It doesn't have to be water. Second, tides happen only over large expanses, not within the small dimensions of a human body. Third, the ocean tides still happen if the Moon is full, new or half-full. The moon still has a gravitational effect even if the sun doesn't fully light it up for us (Kruszelnicki 2012, paras 17–20).

Just as both under-pinning theories associated with the lunar hypothesis can be shown to have traces of scientific credibility, when the theory is subjected to scrutiny, there is more to disprove than affirm. With the earth, the sun and even the parasitic flea exerting more gravitational force upon a person than a full moon, and modern society living under artificial light for up to 90% of the time (Rotton & Kelly 1985), it is not possible to either conclusively endorse or dismiss the validity of either theory for explaining the lunar hypothesis.

As can be seen, neither of these theories enjoy broad acceptance in the subject literature (Rotton & Kelly 1985). Additionally, on the occasion that either theory is posited as a causal factor in respect of the lunar hypothesis, there is little more than a cursory mention of it (Kung & Mrazek 2005; Lieber & Sherin 1972; Raison et al. 1999; Simon 1998; Thakur & Sharma 1984, Thakur et al. 1980). As such, it is these two theories that form the base for the exploration of the research question.

Research Question

This study examined the question 'Does the Queensland Police Service experience an increase in calls for service during a full moon?' In order to answer this question, the following hypothesis was put forward: The Queensland Police Service experienced increased service demand for calls for service associated with the full moon. The null hypothesis was that there was no noticeable difference. This hypothesis was tested using a quantitative approach. The study will test this hypothesis in view of the theories of *gravity* (i.e. *human tide*) and *luminosity*.

Method

This study focused on two variables: calls for service (dependant variable) and the full moon (independent variable). Data relating to calls for service were collected from the Brisbane Police Communications Centre for what was referred to as the Metropolitan South Region of Queensland (now termed the South Brisbane District of the Brisbane Region). Data relating to the phase of the full moon were collected from Geosciences Australia (Commonwealth Government).[1]

The calls for service data were provided by the Queensland Police Service for the 8-year period under review: 1 January 2004 to 31 December 2011, inclusive, and comprised more than 908,000 separate calls for service. This study examined these calls for service using full moon periodicities of one and three days each month. That is to say, a 1-day periodicity on the nominated day of the full moon, and a 3-day periodicity comprising the day before, day of, and day after the full moon. The reason for the two periodicities is that previous studies assigned a variety of periodicities to the full moon that ranged from one to seven days. Because it was deemed that the full moon period is never seven days—one and three days were selected as the best representation of the phenomenon.

The data were subjected to both descriptive and inferential statistical analysis. Descriptive analysis comprised examinations of dispersion and central tendency, whereas inferential analysis entailed the chi-square and the *t*-test.

Limitation

The study examined calls for service data in one state of Australia—Queensland. Although these data do not allow for the study to extrapolate to other states in Australia, or to overseas jurisdictions, the conclusions drawn were mindful to remain within this limit of the data.

Results

The study's findings are presented from two perspectives: 1) a descriptive analysis of the data relating to full moon days and non-full moon days, and 2) an inferential analysis of these two categories of data. Table 1 shows the data for calls for service by non-full moon days as well as full moon days (one-day periodicity). Although both sets of data bear similarities, especially regarding the mean, upon closer inspection it became apparent that the full moon days presented as being less convincing in their quantum and hence less able to support the hypothesis. That is, this result is somewhat masked by the mean being 311 for both non-full moon days and full moon days, and supported by the close spread of the medium (301 and 289, respectively).

Nonetheless, the results regarding the minimum is higher than the non-full moon days (n = 201 and n = 183, respectively), and the maximum is noticeably higher (n = 450 and n = 586, respectively). So, when considering the minimum calls for service, one might be drawn to conclude that full moon days were in fact higher. However, when this result was considered in light of the maximum number of calls, a different picture emerged.

Table 1 One-day periodicity

	Non-Full Moon Days	Full Moon Days
Minimum calls for service	183	201
Maximum calls for service	586	450
Mean	311	311
Median	301	298

To probe this result further, the study subjected the minimum and maximum call data to a chi-square test. The result confirmed that a) any apparent similarity to each other in relation to the mean/median, and b) the inclination to conclude that the full moon data supported the hypothesis, were doubtful. The chi-square test showed that there was a statistically significant difference between the two results. The chi-square statistic was 8.9532 and the *p*-value was .00277. This result is significant at $p < .01$. The study interpreted that the higher number of calls for service *on non-full moon days* was not a matter of random variation, thus rejecting the hypothesis of lunar influence.

Table 2 Three-day periodicity

	Non-Full Moon Days	Full Moon Days
Minimum calls for service	183	201
Maximum calls for service	586	497
Mean	311	310
Median	302	297

When the study examined the data regarding a 3-day periodicity, a similar result was noted. There was little variation in the mean/median data just like the 1-day periodicity dataset. And, when a chi-square analysis was conducted, it returned a result that was significant at $p < .05$. The chi-square statistic was 4.7325, and the *p*-value was .029598. Again, the study interpreted that the higher number of calls for service *on non-full moon days* was not a matter of random variation, once more rejecting the hypothesis of lunar influence.

Table 3—Average calls for service

	Non-Full Moon	Full Moon
Week Days	310	311
Weekends	370	373

Table 3 examines the argument that calls for service on weekends may have been a factor that could confound the results. This table shows that the average number of calls was almost identical. A chi-square analysis confirmed that there was no statistically significant difference, even at the less robust level of $p < .10$ (the chi-square statistic was 0.0055, and the *p*-value was .940776).

At this stage, the study formed the view that there was little likelihood that additional analysis would provide a different interpretation or reveal other scenarios in the data. Still, in an attempted to exhaust other obvious possibilities, the study looked at the calls for service variables relating to 1) mentally ill people, 2) domestic violence, 3) disturbance, 4) rape, 5) homicide, 6) suicide, 7) wilful exposure, and 8) fatal traffic accidents. With each variable, a paired sample *t*-test was conducted using the average number of calls for service relating to these particular types of calls for service, and the number of observations contained in the 8-year period (i.e., whether it was a full moon or not). In each of these eight call for service types, the data failed to produce a statistically significant result at $p = < .05$. This result resolved any doubt the study had—any further analysis of the data was unlikely to yield a finding that would reject the null hypothesis.

Discussion and Conclusion

For decades the catch-cry in management circles has been *efficiency.* Arguably, efficiency is at the heart of all organisations' ability to achieve outcomes. Efficiency allows organisations to increase outputs, reduce costs, and minimise waste. In order to achieve any level of efficiency, organisations need to plan. Business administrators use numerous methods to assist their planning processes—methods that help clarify problems, or analyse political, economic, social, and/or technological data, or envisage how the future might impact on the organisation. This study examined an obscure issue that common wisdom has for centuries held with more than a bit of sway—the effect the full moon has on human behaviour. In the context of policing, this translates to calls for service.

If this study found that the anecdotal evidence of police officers that the full moon had such an effect, the finding could be used to assist police administrators streamline practice by helping them plan the deployment of resources to maximise efficiency. From a policy point of view, police administrators could use the finding to lobby for additional resources, or for a reorganisation of police commands to take in to account the full moon in the same way that other recurring events do—the annual Christmas pageants, national holiday festivals, and so on.

The lunar hypothesis posed an interesting research question because if there was evidence found to support it—based on either theory, it could have had practical as well and policy implications.

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Nonetheless, no evidence was forthcoming. The study looked at full moon days and non-full moon days using descriptive analysis, and this suggested that there may be some differences.

Although there were variations in the minimum and maximum number of events, a chi-square analysis determined that the higher number of calls for service on non-full moon days could not be due to random variation, thus rejecting the hypothesis ($p < .01$). But this was for a single full moon day, that is, the day of the full moon. The question was then asked of the data, 'Could this be too narrow an interpretation of the full moon? Could a 3-day full moon period yield a different result?' So the study analysed data relating to a 3-day periodicity. The result varied little. A chi-square analysis returned a similar result, though it was significant at $p < .05$.

Based on these results, no support for the lunar hypothesis could be provided. Regardless, the study posited the question whether there might be confounding variables—such as weekends—that might be concealing the results. So a series of additional statistical tests were run to see if there was any weight to this argument. The study also tested eight specific types of police responses—calls regarding 1) mentally ill people, 2) domestic violence, 3) disturbance, 4) rape, 5) homicide, 6) suicide, 7) wilful exposure, and 8) fatal traffic accidents—to see if these events might result in a different finding. In the end, all tests failed to reject the null hypothesis.

Organisational improvements in operational and administrative aspects could be achieved through planning when, and only if, there is an increased service demand during a full moon. What this study demonstrated was that the concept of police being busier at the full moon due to a celestial influence upon human behaviour did not manifest when subjected to scientific inquiry. The failure of this study to identify any correlation between calls for service and the full moon makes the need for appropriate consideration in policy and practice unnecessary. With the exception of discounting a policy of rostering extra personnel or resources during a full moon—a practice that has long been used in some health facilities (e.g., Freilich 1965)—the implications for police practice are minimal at best.

It is posited that the results of this study may not sway police officers' belief in the lunar hypothesis, but it makes clear that such beliefs are at odds with the overwhelming body of evidence to the contrary, including the evidence presented in this study.

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End Notes

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The Importance of Organisational Use of Force Policy

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Introduction

As the professional model of policing began to take hold throughout the United States during the middle part of the last century, so too did the importance of organisational policy. Police leaders such as Richard Sylvester, August Vollmer, and O.W. Wilson increasing drew attention to the merits of written policy and standard operating procedures (Walker 1993). Scholars such as a Kenneth Culp Davis joined the chorus when he a published *Discretionary Justice: A Preliminary Inquiry* (1969). Ever since, the merits of administrative policy have been widely acknowledged (Gottfredson & Gottfredson 1988; Walker 1993).

There is perhaps no greater example of the influence that organisational policy can have on police behaviour than that of lethal force, where research has shown that more restrictive policies are related to a reduction in the overall number of police shootings and deaths (Fyfe 1979; Geller & Scott 1992; Walker 1993, White 2001). The effect of varying types of less lethal force policies, however, has largely remained an unaddressed empirical question until recently.

Based on data collected from a large-scale national project in the United States, a number of journal articles have been published over the last few years that addresses the impact that less lethal use of force policy can have on both officer attitudes and behaviour. This important project is highlighted here along with key findings and policy implications stemming from two published journal articles appearing in *Criminal Justice and Behavior* (Terrill & Paoline 2013) and the *Justice Quarterly* (Terrill & Paoline, 2017).

The Assessing Police Use of Force Policy and Outcomes Project

The Assessing Police Use of Force Policy and Outcomes (Terrill et al. 2012) project was designed to identify the different types of use of force policies used by police agencies throughout the United States, and determines whether certain types of policies offer more beneficial outcomes to police practitioners. More specifically, the project sought to (1) identify existing variation in use of force policies, and (2) determine which types of policies offer more desirable outcomes as measured by the degree to which such directives: (a) provide officers assistance and guidance with respect to force decision-making, and (b) are associated with less force, injuries to suspects and officers, and citizen complaints.

To accomplish these goals, the project was divided into two primary phases. In Phase I, researchers administered a mail survey to a stratified random sample of over 1,000 police agencies across the country, based on agency size (i.e., sworn officers) and type (i.e., municipal, sheriff). The survey captured whether an agency had a written policy on non-lethal force, employed a force continuum approach within their policy, the form or type of continuum used, the placement of various tactics within the continuum framework, and report and review mechanisms.

In Phase II, eight departments (Columbus, Ohio; Charlotte-Mecklenburg, North Carolina; Portland, Oregon; Albuquerque, New Mexico; Colorado Springs, Colorado; St. Petersburg, Florida; Fort Wayne, Indiana; and Knoxville, Tennessee) were selected for deeper exploration into the full spectrum of police use of force (i.e., from policy to practice). E

ach of the agencies offered a different approach to guiding their officers' use of force decision-making. The research team conducted multiple site visits over several years at each agency. In doing so, they collected, coded, and analysed over 18,000 use of force reports and more than 5,000 citizen complaints records; surveyed over 2,300 patrol officers; and conducted a series of unstructured (and structured) interviews with officials at the middle and upper management levels. The research team also gathered varying sources of information (e.g., organisational charts, rosters, rules and regulation manuals, number of reported crimes, arrests, calls for service) to help interpret and contextualise the findings. To date this project has informed on many topics that go well beyond the original scope of the initial proposal, and has produced 20 peer-reviewed journal articles, two dissertations, and a book.

Use of Force Policy Restrictiveness Across Three Police Departments

Use of force policies, like other organisationally based directives (e.g., vehicle pursuits, domestic assaults, searches), are designed to assist and guide officers in their street-level decision-making. As such, use of force policies should instruct officers as to when to use different types of force. Results from the Phase I national survey showed there was enormous variation across the United States, and no commonly accepted policy, in terms of how more than 16,000 different police departments instruct officers on the use of force. Essentially, agencies determine the type of policy they use with little to no empirical evidence as to which policy type or approach is best, or even better. Within this context, key findings from the Assessing Police Use of Force Policy and Outcomes study are highlighted in terms of how 'policy restrictiveness' affects officer attitudes and use of force behaviour across three illustrative police agencies, each relying on a different policy approach ranging in restrictiveness. In other words, is a more restrictive policy (where officers generally have less discretion) better than a less restrictive policy (where officers generally have more discretionary freedom)?

As illustrated in Terrill and Paoline (2013), Charlotte-Mecklenburg, North Carolina; Albuquerque, New Mexico; and Colorado Springs, Colorado were selected for inquiry because they offered the greatest variation in terms of policy restrictiveness. Charlotte-Mecklenburg had the most restrictive policy, using a linear continuum design with explicit force levels linked to varying types of resistance. The policy provided explicit direction as to which types of force were most appropriate given different types of resistant behaviours encountered. The progression of force was somewhat measured (e.g., the use of soft empty hand control prior to oleoresin capsicum spray before hard empty hand control) and restricted the use of empty hard tactics, conducted energy devices (e.g., TASER®), and impact weapons (e.g., ASP baton) to suspects presenting a range of resistance between defensive and active aggression.

Albuquerque also used a linear continuum design, laying out varying force options linked to varying forms of citizen resistance, but the resistance and force categories were quite broad. For instance, passive, verbal, and physically defensive resistance were all grouped together into one category (i.e. non-cooperative), as was the recommended office force response (i.e., control), which suggested anything from the use of verbal persuasion, to compliance holds, to chemical agents, to leveraged or impact takedowns. Further, the recommended progression of force was less measured compared to Charlotte-Mecklenburg, as officers were permitted to use relatively higher levels of force on lower levels of resistance (Albuquerque's policy permitted officers to use a TASER® on verbally resistant suspects while Charlotte-Mecklenburg restricted the use of a TASER® to suspects attempting or actually attacking an officer or other citizen). Such differences suggest that Albuquerque's policy offered less explicit guidance and restrictiveness, compared to Charlotte-Mecklenburg, and was thus characterised as moderately restrictive.

Colorado Springs had the least restrictive policy, relying on a non-linear circular design. This policy graphically showed an officer standing in the middle of a circle, or wheel-like object, with various force options randomly surrounding the officer to indicate there is no natural progression of force (e.g., lethal force placed next to soft control techniques, impact weapons placed next to voice commands). Unlike Charlotte-Mecklenburg and Albuquerque's linear based models, there was no depiction of citizen resistance as to which types of force were most appropriate given different types of resistance (e.g., officers that encounter verbally resistant citizens are not explicitly required to use a specific type of force in response). Thus, officers were provided a substantial degree of flexibility with respect to what type of force they could use when dealing with any number of citizen resistant behaviours.

Officer Attitude Findings

Terrill and Paoline (2013) surveyed patrol officers in these three cities as to whether they believed their agency policy offered appropriate guidance in the use of force. The results showed that officers working in Charlotte-Mecklenburg and Albuquerque (departments using linear continuum designs) generally viewed their agency's force police more favorably than officers working in Colorado Springs (the department using a wheel design). Officers felt that the linear based models in Charlotte-Mecklenburg and Albuquerque better addressed how to deal with passive and verbally resistant suspects in particular. Nonetheless, officers also reported not wanting to be overly regulated as to the types of permissible hands-on or weapons based tactics they could use (particularly use of the TASER®) once suspect resistance rises to the level of physicality.[1]

Such results suggest that providing a degree of discretionary flexibility in the form of a loosely coupled non-linear circular (or wheel-like) policy model *does not* necessary translate to officers believing it helps them decide when and when not to use force. While one may reasonably posit that street-level officers would want as much discretion and freedom as possible, the findings show that officers believe such an approach offers significantly less guidance, at least when dealing with passive and verbally resistant suspects.

While such forms of resistance may not pose the same threat probability to officers in terms of violence, citizens failing to respond to officer direction either passively or verbally may present a greater dilemma in terms of what to do. That is, officers are generally well-trained on how to handle suspects who physically resist control. For instance, nearly all policies permit officers to use some form of hands-on tactics or less lethal weapons on suspects displaying assaultive physical resistance. Conversely, how to deal with a suspect simply refusing to show identification is more problematic in terms of what forms of coercive act may be permissible. In this sense, perhaps officers need greater training and policy direction.

Second, policy attempts to hone in or tightly control discretionary force choices lead to officers believing they are too tightly constrained, especially when considering physically resistant citizens. While officers may wish to have greater specification on how to deal with passive and verbally resistant suspects, it appears they also do not want to be overly regulated as to the types of permissible hands-on or weapons based tactics once resistance rises to the level of physicality.

This was especially true with TASERs® in Charlotte-Mecklenburg, where officers wanted more flexibility than their policy permitted. Overall, within the context of the three policy approaches examined, Albuquerque's policy offered a viable middle ground in terms of providing appropriate guidance and restrictiveness, at least with respect to officer attitudes.

Officer Behaviour Findings

Terrill and Paoline (2017) also examined use of force data in these three cities to assess the extent to which agency policy was related to street-level behaviour. The results consistently showed that officers in Charlotte-Mecklenburg, which relied on the more restrictive policy framework, used force less readily than officers in Colorado Springs and Albuquerque, who operated within less restrictive policy environments. Interestingly, Charlotte-Mecklenburg was the largest of the three cities in terms of both the number of sworn officers and citizen population, and had the highest crime rate, yet officers in this city relied on less force. Moreover, the results showed that officers working in Colorado Springs (the agency with the least restrictive, or loosely-coupled policy) were most apt to use higher levels of force. Hence, similar to prior work on restrictive lethal force policies reducing lethal force, it appears that administrative policy matters with respect to less lethal policy reducing less lethal use of force, and there is merit to incorporating an administrative policy that is quite specific and directs officers to use a linear and specific progression of less lethal force.

Police scholars such as Bittner (1970), Muir (1977), and Klockars (1995) have emphasised the inherent benefits of a less coercive policing environment, arguing that the best officers are those who use less, not more, force. In effect, a good officer is one who can handle a conflictual encounter with a citizen in the least coercive manner possible. Within this context, the present findings offer police administrators a readily available, and within their control, means (via policy development) of reducing the amount of force in encounters with the public. The tangible benefits are plentiful because using less force may also lead to a reduction in both citizen and police injuries, as well as the frequency of citizen complaints and lawsuits for alleged police misconduct. Perhaps most importantly, a less coercive police style may enhance police–community relations and public trust in the police.

Of course, simply reducing the amount of force used by police officers is not the only consideration police administrators need to be sensitive to when considering the use of a more restrictive force policy. As illustrated in the officer attitudes analyses noted above (Terrill & Paoline 2013), not all police officers want a more restricted policy. Thus, while a more restrictive use of force policy may bring many benefits, there may also be some drawbacks with regard to officer morale.

Being able to balance such potentially conflicting outcomes becomes an important challenge for administrators.

Conclusion

The emerging work from the Assessing Police Use of Force Policy and Outcomes project contains the first scholarly inquiries that systematically focus on the potential link between less lethal use of force policy and resulting outcomes. Such evidence permits informed policy decision-making based on independent empirical assessments that should be of interest to researchers, students, police administrators, police trainers, journalists, legislators, and the general citizenry. Yet, there is much work to be done. For instance, more research needs to be conducted on the impact of varying organisational policy approaches on other outcomes—such as injuries, citizen complaints, and lawsuits. Initial efforts to answer such questions, as illustrated in Terrill et al. (2012), indicate that there is no 'ideal' policy across all outcomes (e.g., one that leads to less force usage, less citizen and officer injuries, *and* less lawsuits). The good news though is that empirical evidence is emerging, which will assist police executives when determining the most appropriate policy for their agency and constituents.

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End Notes

1. Interestingly, as shown in Paoline and Terrill (2011), when expanding the analysis to include asking patrol officers from all eight cities to choose, irrespective of their departmental guidelines, what they believe to be appropriate forms of force in dealing with different types of subject resistance, the findings revealed that the majority of street level officers were more conservative in their views, as to "what is" and "what is not" reasonable force, than how police organisations conceptualise and implement force policy. In fact, all else being equal, the findings showed that unless one assaults a police officer or another citizen, most officers believed that anything more than simple restraint or pain compliance techniques would be inappropriate. See for further.

Leveraging Literature Reviews and Providing Real World Experience: WA Police Internships 2017

WAPol's commitment to driving an evidence based approach extends well beyond a dedicated unit to support strategic thinking, planning and subsequent testing of new and current practice. One of the principles of adopting an evidence based approach is leveraging *what we know* or *don't know* about 'what works, what doesn't and what looks promising' across the many different aspects of policing (Sherman, 1998). Keeping up with the literature is a challenge for police agencies, and properly understanding the quality of the existing research presents a particular difficulty (Kahneman, 2001).

Understanding and explaining existing evidence takes time, access to libraries and the ability to interpret academic research, which was identified by WAPol EBPD (Evidence Based Policing Division) as a capability gap. This gap has been addressed through the recruitment of interns; current students who are studying Criminology, Law, Behavioural Science and Psychology. Their engagement not only fills the capability gap, but develops WAPol's relationships with local universities. Interns are not paid but receive credits towards their studies, and are typically engaged for 100-150 hours, working alongside the EBPD two to three days each week. Interns are assigned a mentor, usually a subject matter expert, who guides the focus of their report or literature review on a specific topic of interest to WAPol. Their work is then shared internally across relevant business units and plays a leading role in guiding the development and methodology of experimental protocols approved for testing.

Figure 1, summarises the outstanding body of work that has been completed the WAPol EBPD interns. There is insufficient space to provide abstract for these reports, however PowerPoint overviews and/or full articles are available on request to the WAPol EBPD.

Figure 1. WA Police Internship Reports 2015-2017.

WAPol Internship Reports: 2015-2017		
Title/Subject Area	**Author**	**University**
Body Worn Video: Effects on Offence Detection, Evidence Quality and Behaviour	Amber Wells	Murdoch University
Operation Contact – Literature Review to Inform this Project on Bail Curfew Checks	Josephine Douglas	Murdoch University
Implementation of Restorative Justice Conferencing by Western Australia Police	Briannen Morrow	Murdoch University
Experiment Proposal - Targeted Deployment of Visual Display Trailers to Reduce Domestic Burglary in Western Australia	Lucy Stronach	Murdoch University
Treatment Compliance in Criminological Research Studies: A Western Australian Police Body-Worn Video Case Study	Rebecca Moore	Murdoch University
Crime Harm Index 1 – Legislative Review and Maximum Sentence Data Collection	Jelena Durmic	University of Western Australia
Crime Harm Index 2 – Maximum Sentence Values Compared with the Cambridge Harm Index	Leilani Kwan	Edith Cowan University
Crime Harm Index 3 - Actual Sentence Review	Claudia Martelli	Murdoch University
Crime Harm Index 4 – Implementation of the Cambridge Harm Index in Western Australia	Olivia Long	Murdoch University
Family Violence and 72 hour police orders in Western Australia	Cael Patey	Murdoch University
Local strategy evaluation: Wanneroo Motor Vehicle Crime Pamphlet Intervention Strategy	Shauna McQuade	University of Western Australia
Near Repeat Burglary 2014-2016 Comparison	Molly Donohue	Murdoch University
Electronic Monitoring of Curfew Compliance	Jade Maree Beisley	Murdoch University
Incorporating Costs into EBP Evaluations	Larissa Moga	Murdoch University
Forecasting in Criminology – A Review of Published Literature	Tashia Abeyasinghe	Notre Dame
Providing Advocacy to Victims of Sexual Assault	Ryan Ho	University of Western Australia
Youth Crime Interventions – A Literature Review	Deborah Bartlett	Murdoch University

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