SEBP
Australia & New Zealand
Society of Evidence Based Policing

Volume 4 Number 1 2019

ISSN: 2206-5202

Police Science

Australia & New Zealand Journal of Evidence Based Policing

www.anzsebp.com

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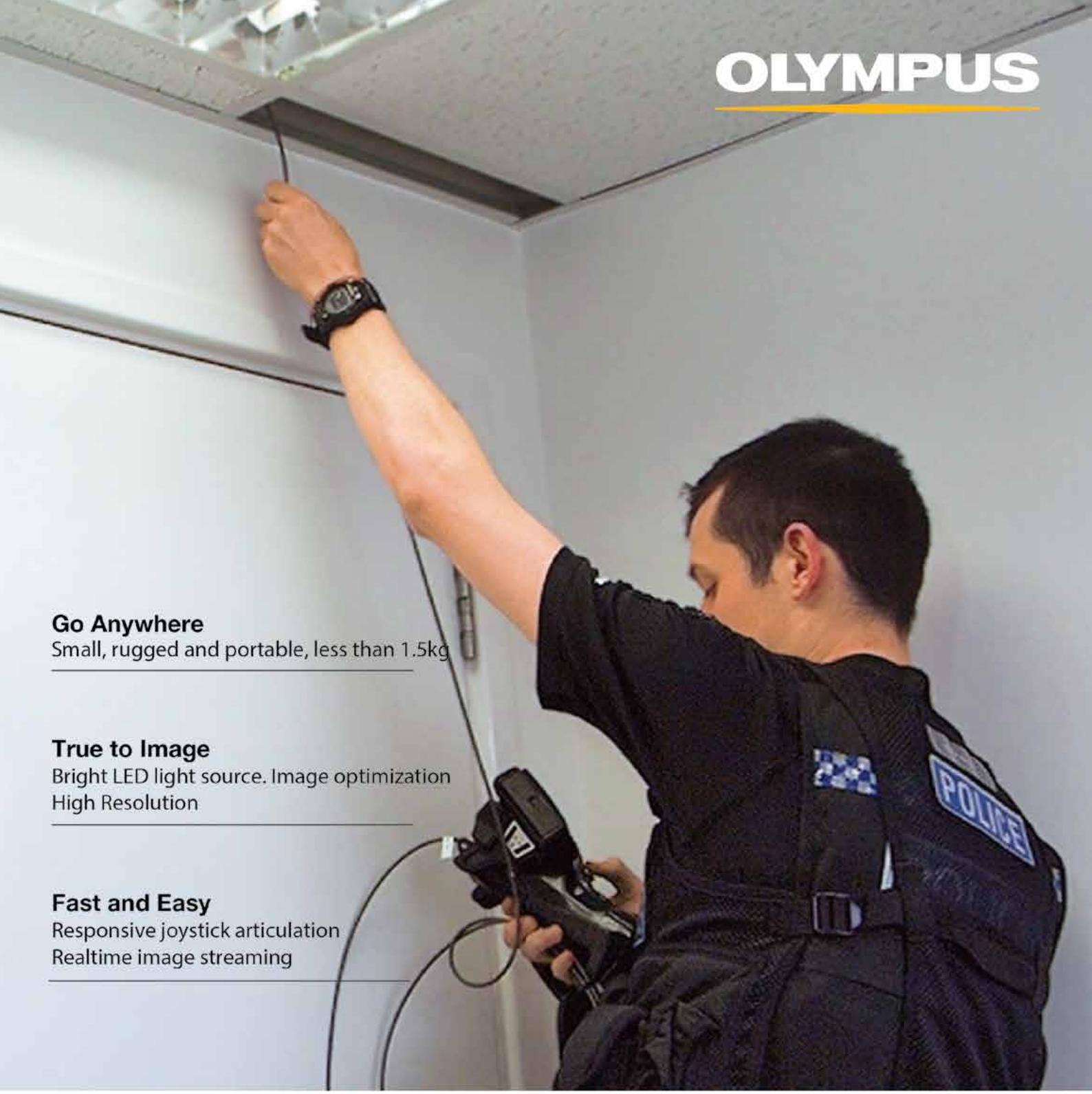

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Vol. 4, No. 1 Winter 2019

Published by the Australia & New Zealand Society of Evidence Based Policing

ISSN: 2206-5202

Publisher
///emergencymedia
1st Floor, 607 Bourke Street, Melbourne Vic 3000.
Direct all advertising enquiries to 1300 855 444.
Print Post approved: 100016068

Frequency Summer and Winter

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 President

Debbie Platz

Assistant Commissioner AFP

I'd like to offer a warm welcome to our members to this 2019 Winter Edition of Police Science, which contains some outstanding pieces of work from colleagues across policing and academia. I hope you enjoy reading this edition and take away the inspiration to find out more and respectfully question the world of policing around you.

As the incoming president of the society I'd like to take a moment to reflect on the significant contribution of our outgoing president, former Deputy Commissioner Stephen Brown. As both a friend and colleague I was fortunate to work with Stephen who played a key role in influencing the rise of an evidence based policing approach across the Australasian region. In life, as in policing, it can be all too easy to accept the status quo, limit risk taking and remain in your comfort zone. However, policing has changed over the past few decades and continues to move from the complicated provision of service to our communities to a more complex environment where public expectations of service are high and resources becoming ever more finite.

Add to this, the challenge of making the most effective and efficient use of our resources, whilst improving legitimacy with the public in a time where serious national and international events are a cause of grave concern for everyone, we are faced with a decision- do we continue to tread a path where our strategies and operational activities remain untested? Or, do we carefully navigate a different path where we combine professional expertise with evidence based decision making? Stephen strived for a more evidence based approach to keeping our communities safe and providing value for money in the use of our resources.

His contribution to the society and his leadership in creating the world's first Evidence Based Policing Division (now the Office of Applied Criminology) in Western Australia was a first and one that is helping to work towards safer communities now and into the future. On behalf of the ANZ SEBP Executive team, I would like to wish Stephen all the best for the future.

Following our conference at the AIPM in Manly in October 2018 the executive team have been hard at work to review the society's aims, objectives and our membership offer to our 3000 plus members. We've reviewed and updated the rules of the association to make them more workable and bring them in line with other police associations and we're developing a new strategic plan with our key stakeholders from the AIC (Australian Institute of Criminology), ANZPAA (Australia and New Zealand Police Advisory Agency), AIPM (Australian Institute of Police Management), University of Queensland and KPMG. This will help us align police, law enforcement and academia across the region and enable improved collaboration in creating and disseminating evidence based practice.

The executive team are meeting again in Brisbane in early May to finalise this strategy, agree on next steps and also put the finishing touches to this year's ANZ SEBP conference. I am very proud to announce that, because we have outgrown the conference facilities at the AIPM, we have partnered with the AIC to jointly host this year's conference. The ANZSEBP-AIC Conference 2019 will be held at Old Parliament House in Canberra on Thursday 31st October and Friday 1st November. The theme for this year's conference is, *"New Frontiers – How the Evidence Base can inform Policing and Law Enforcement"*, with presentations on the following areas:

- Counter terrorism and countering violent extremism;
- Responses to serious and organised crime;
- Reducing child sexual exploitation;
- Targeting high-risk offenders;
- Preventing volume crime;
- Improving police practice; and
- Law enforcement training and education.

We hope to have the conference advertised and open for bookings in the next couple of months, so watch this space.

On a final note, Friday 15th March 2019 will be a date forever etched in the memory of police colleagues across the region, particularly our friends and colleagues in New Zealand Police who responded so professionally to the attacks at Mosques in Christchurch. There is no space in society for the hatred and intolerance which fuelled these shocking events and our thoughts are with those affected by this tragedy. Despite the pressures of post event response and investigation during the past months, I am really pleased to see the New Zealand Police contribution to this edition and thank them for making the time to put these articles together.

Whatever role you play in policing or law enforcement I encourage you to become curious about evidence based policing, each member state and body has a representative voice on the executive team and are happy to field your enquiries or talk about how you can contribute. If you're interested in knowing more I encourage you to get in contact.

Kind regards

Assistant Commissioner Debbie Platz

Australian Federal Police
President – ANZSEBP

American Society of Evidence-Based Policing (ASEBP)

Sergeant Jonas Baughman

Sergeant Jonas Baughman is a 16-year veteran of the Kansas City Police Department (KCPD). A native of the Kansas City area, Sergeant Baughman joined the KCPD after obtaining a B.A. in psychology from Creighton University. He has held assignments in patrol, investigations, crime/intelligence analysis, and administration during his tenure.

The American Society of Evidence-Based Policing (ASEBP) has been working hard in recent months to spread the word about the value of applying research to policing in the United States and abroad. Here are some highlights illustrating achievements of both ASEBP members and the organization at large:

Captain Ivonne Roman of the Newark, New Jersey Police Department (NPD) presented her research findings on women in policing at multiple venues in 2018, including at conferences for the ASEBP and International Association of Chiefs of Police (IACP). Moreover, Captain Roman's work inspired the National Institute of Justice (NIJ) to host its own Women in Policing Summit in December, 2018.

The summit was attended by over 100 police managers, academics, and other leaders and a report from the NIJ outlining further research priorities is expected in April, 2019. Captain Roman has also been honored by being selected as a 2019 TED Talks fellow based on her advocacy of women in policing! Her TED Talk is scheduled for April 15, 2019 at the annual TED Talks Conference in Vancouver, British Columbia so be sure to check it out!

The Kansas City, Missouri Police Department (KCPD) was pleased to announce a joint project with the Rutgers Center on Public Security (RCPS) in March, 2019 to apply the evidence-based practice of Risk-Based Policing in Kansas City, Missouri. The KCPD and RCPS have worked together previously but this will be their largest effort to date. RCPS members, including Dr. Joel Caplan, Dr. Leslie Kennedy, and Dr. Grant Drawve, have already conducted on-site training for KCPD command staff and will provide ongoing support as the project unfolds. ASEBP member Sergeant Jonas Baughman is coordinating additional training and execution of the strategy internally. The KCPD has already begun the process of planning tasks and activities for the project, as well as tracking data, but the project will begin in a more formal sense in April, 2019.

The ASEBP's Joshua Young joined a panel of recognized law enforcement experts to provide mentoring services to inmates incarcerated at Washington D.C.'s Department of Corrections in March, 2019.

The panel, comprised of police leaders, judges, prosecutors, and academics, met with inmates personally and discussed pathways to successfully re-enter society and become self-sufficient, productive citizens. Joshua lectured on how the rules of criminal procedure can impact one's constitutional rights, as shown at right.

As for the ASEBP as a whole, the organization is excited to build on its foundation of success from last year's annual conference in Philadelphia, Pennsylvania. This year's conference will be hosted at the University of Cincinnati in Cincinnati, Ohio from May 20 to 21 and will be full of opportunities to discover emerging policing research and network with police professionals and academics alike.

Here is a small sample of topics scheduled for this year:

- Root Cause Analysis of Officer-involved Shootings
- The Need for Evidence-Based Management
- Implicit Bias
- Women in Policing
- Conducting Your Own In-House Research

Moreover, the ASEBP is excited to offer conference attendees a unique opportunity to play a direct role in advancing science in policing at the 2019 conference.

Attendees will be able to participate in a research experiment designed through a partnership shared between BetaGov and ASEBP members Renee Mitchell and Jason Potts. The experiment will be a randomized controlled trial in which participants use VR in realistic scenarios frequently encountered by police officers. This pilot experiment may expand to a larger, similar effort at the Vallejo, California Police Department (VPD) in the future, as well.

In addition to the 2019 annual conference, the ASEBP continues to seek and establish partnerships with research institutions, including the following:

- The Research Triangle Institute (RTI), an independent, non-profit institute that assists government and commercial entities worldwide with research, development, and technical support to inform public policy and embed evidence in practice.
- The Loss Prevention Research Council (LPRC), a collaborative effort created in 2001 by Dr. Read Hayes and leading retailers. The LPRC supports the evidence-based needs of Loss Prevention decision-makers and it has conducted over 300 research projects ranging from development of statistical models for shortage reduction or shoplifter dynamics research.
- The Academy of Criminal Justice Sciences (ACJS), an international association seeking to promote criminal justice education, research, and policy development for both academics and criminal justice practitioners.

Moving forward, the ASEBP is already planning its fourth annual conference in 2020. The organization will continue other efforts to increase membership and expand upon the value it brings its members, including sharing of research briefs written in "cop talk" or creating a "Pracademic Academy" in 2020 used to teach practitioners and academics about field research.

Feel free to visit americansebp.org or follow us at on Twitter at @ EBpolicing to learn more or join the ASEBP in the movement to advocate evidence-based policing!

Canadian Society of Evidence Based Policing (CAN-SEBP)

Jacek Koziarski

PhD Student at the University of Western Ontario

Since our previous update, CAN-SEBP has placed an emphasis on improving our existing knowledge mobilization tools, as well as launching new ones. For example, our monthly #EBPwebcast recently experienced a complete visual overhaul to enhance the viewing experience for those watching live or those watching the recording later on.

With respect to new tools, we've launched a new Methods Video Series. This series is comprised of short, five-minute videos that provide the basic information on a particular methodology. Our Community Engagement Team has taken the lead on the creation of these videos, and to make them more creative, we've incorporated the use of 'BitMojis'. The BitMoji application has allowed us to create digital caricatures of everyone on our Community Engagement Team, and each video is narrated by the BitMoji of the Community Engagement Team member that created it. New videos are launched monthly, and are free to access through the 'Members Only' section of the CAN-SEBP website.

Speaking of the Community Engagement Team, they continue to do an outstanding job engaging with the evidence-based policing community on social media. From Crime Analyst Thursday, to #PoliceDay Friday and #SundayFunday, the Team has established a multi-faceted approach to engagement that includes daily content for anyone across the policing spectrum. Since launch in May of 2018, the Team has steadily gained Twitter followers, month-over-month. As of writing, the Team has 1,400 followers and counting! You can learn more about what the team is up to, here: **http://www.can-sebp.net/can-sebp-ce.** Should you have any questions regarding our Community Engagement Team, or would like to take part in one of our monthly webcasts, please feel free to email either Lorna Ferguson (lfergu5@uwo.ca) or Jacek Koziarski (jkoziars@uwo.ca).

Finally, and probably our biggest development since the previous update, CAN-SEBP has initiated plans to develop a national 'What Works' Center in Canada. Through this Center we hope to provide Canadian police organizations with comprehensive reviews about 'What Works' with respect to training and crime prevention. Stay tuned to our CAN-SEBP Twitter feed as we release more details in the coming months!

So far, 2019 has been a busy year for us here at CAN-SEBP, but we look forward to establishing greater engagement and a greater reach!

United Kingdom Society of Evidence Based Policing (UKSEBP)

Roger Pegram *Vice Chair of the Society of Evidence Based Policing*

Roger is an inspector with the Greater Manchester Police, a visiting scholar with the Institute of Criminology at University of Cambridge and the vice chair of the Society of Evidence Based Policing. His research has focussed on police training and education, reducing repeat victimisation and the implementation and tracking of policing experiments. As a passionate advocate of Evidence Based Policing he is a globally renowned public speaker and was awarded a chief constables commendation from the College of Policing in 2016 for his contribution to growing evidence based practice in policing in England and Wales.

He has recently run an evidence based masterclass in GMP to create over 80 evidence based champions who he coordinates in applying evidence based methods to local community problem solving. Roger is quoted as saying "this is about community safety, it is of paramount importance that we understand what policing methods are most effective".

Be like Dave:

a summary of the Society of Evidence Based Policing conference 2019: Policing 2.0 If you had to design policing from scratch what would you do?

I write this after just replying to a heart-warming e-mail from a neighbourhood sergeant called Dave from within my own force, Greater Manchester Police (GMP), who attended our SEBP conference 2019 in London. He heard Simon Williams speak about the Western Australia hotspots experiment and has implemented hotspots patrol in his area after liaising with an analyst to fully understand where was hot, where was not and when his officers should hotspot patrol. The great thing about this story is that Dave is a time served neighbourhood sergeant, good at his job and this time last year had no idea what evidence based policing was. He is now an evidence based policing champion in GMP and implementing research conducted in Australia in England to protect society and help keep people safe, which is brilliant.

This challenges me and makes me ask the question: how many people who attend conferences actually take that learning back and make changes? How many other people have been transformed like Dave? Whether you call it evidence based policing or evidence based practice matters not, the important thing is the practice, are we doing enough practice of tried and tested evidence based approaches? Clearly, Dave connected with what Simon was saying, thought it would do good in his community, sought the backing to give it a go and implemented it… all credit to him!

This year's conference was held at the Royal Society in London (March 13-14). The Royal Society has been the birthplace of numerous scientific movements that have gone on to change the world, making it a fitting venue as we seek to do the same. The conference was run in partnership with the Dawes Centre for Future Crime at University College London and was a sold out event that featured some of the best minds in the world in terms of how we can prepare policing for the future, how we can respond to tomorrow and how we could exploit opportunities that may well exist in the future.

The conference opened with a warm welcome from Dr Julie Maxton CBE the Chief Executive of the Royal Society who is fulfilling the role once filled by Sir Isaac Newton no less. Dr Maxton informed us of the Royal Society motto 'Nullias in verba' which stands for 'take nobody's word for it'. This enables us to test those assertions believed to be fact and to challenge people's assumptions.

The programme of speakers was vast, with Professor Lawrence Sherman informing on the progression of evidence based policing globally, Mike Cunningham CEO of the College of Policing and Chief Constable Sara Thornton both spoke of the importance of contemporary policing, being agile and how evidence based policing is critical to our readiness. Dr Toby Davies and Simon Williams spoke of their hotspot analysis research; Professor Tom Kirchmaier spoke of the big data correlations of school expulsion and knife crime and how hate crime increases in the UK after a global terrorist incident and key political decisions. Professor Daniel Effron gave a fantastic presentation on moral licensing and how this can impact on policing, the notion that we are more susceptible to doing bad things after we have done good things. Professor Nick Tilley spoke of the marriage between problem oriented policing and evidence based policing and how the two are being used together to great effect. This is just a taste of what happened with many other great speakers coming from all over the world giving great informative presentations, it really was a fantastic couple of days.

It is now almost a month after the conference and I ask myself 'so what?', we have learned about the latest evidence on knife crime, terrorism, hotspot policing, legitimacy, diversity, the internet of things, smarter cities, procedural justice, big data, how we should be planning for the future of policing, but 'so what?' it is great attending a conference, networking, meeting new people, hearing about some good experiments and having some great discussions and debates but 'so what?'.

The purpose of the Society of Evidence Based Policing is to improve policing from within by using the best research evidence. That is the 'so what', when police officers/staff, academics, partner agencies and those who have a role in policing can make a real difference from within. Nobody ever changed the world by being a conformist. Be a respectful challenging non-conformist, be brave, try new things, use the learning from conferences and publications such as this and do your upmost to change policing for the better. Dave came to the conference with a purpose, to learn things that he could take back to make policing better in the community he serves, I challenge whoever is taking the time to read this to be like Dave.

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 complete the Distinguished Police Scientist award nomination form and submit online.

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) 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 complete the Outstanding Police Experiment award nomination form and submit online.

Key Dates

Nomination Opens:	1 June 2019
Recipient Notification:	1 September 2019

Not all Evidence is Created Equally

Written by Professor Jerry Ratcliffe, Department of Criminal Justice, Temple University.

This article is taken from a blog post by Jerry which was updated in late 2018. The original post and other useful resources can be found at www.jratcliffe.net.

The Australian and New Zealand Society of Evidence Based Policing (@ANZSEBP) recently retweeted a graphic from an old blog of mine, so this seems a good time to update and explain it a little.

The chart above is adapted from various sources and emphasizes quantitative studies and randomized trials. Some argue that randomized trials can be of limited value, or difficult to implement, and that observational studies and other sources of information can inform policing. This is all true. Moreover, qualitative research can be useful when interpreting evaluation results, seeking insights into why programs succeed or fail, and considering where they can go moving forward. But if you have an opportunity to conduct an evaluation, try and design it to get the best possible assessment of the program.

Any research field has variable levels of what is called **methodological quality**. If you think all evaluations are useful for deciding how we spend our money, then boy, do I have a bridge to sell you!

Just look through Amazon. Reviewers rarely compare one product against another. You more frequently find five-star reviews alongside comments such as "Can't wait to try this!" or "It arrived on time and works as advertised". Your widget might work as advertised, but better than other widgets?

One of the biggest challenges evaluators encounter is rejecting competing explanations for a crime drop. Here's a recent example. San Francisco's police department credited crisis intervention training with a reduction in police use of force incidents. Simply noting a change in numbers doesn't however rule out a range of other possible explanations, such as officers conducting fewer proactive field investigations or making fewer arrests (activities that can sometimes spark an incident).

Not to mention, it is not uncommon for two or three different programs to claim credit for crime drops in the same area.

The centre column of my updated figure now shows examples of each level. If terms like cross-sectional or longitudinal feel unnecessarily technical—welcome to academic jargon—then the examples may help. You might make the connection between my example of the license plate readers and San Francisco's crisis intervention training.

San Fran's CIT program scores at best a 2 (because of a simplistic pre-post claim), or worse one of the zeroes, because it is an internal non-peer reviewed assertion. The lowest zero level probably seems harsh on police chiefs, but many are unfamiliar with, and do not review, the research when the media calls or they write their magnum opus. They trade on their "expertise" and hope or believe their authority is a replacement for a lack of knowledge (unfortunately, it frequently works).

Experience is valuable, but it is also vulnerable to many potential biases that make it less reliable.

And when academics get quoted in newspapers, it goes through too many filters and is usually too brief, to be a reliable source for decision-makers.

For the other zero, while I recognize some police departments do exemplary research and may be impervious to political and internal pressure, regretfully, this is rarely the case. Third party evaluations often bring more rigor and impartiality.

Once we hit level 3 we cross an important threshold. Writing on evidence-based policing (EBP), Larry Sherman argued "***the bare minimum, rock-bottom standard for EBP is this: a comparison group is essential to every test to be included as 'evidence'***". Above level 2 we cross this hurdle, hence the chart background turns from red (Danger Will Robinson!) or yellow (bees!), to green.

What's suspect or just interesting, becomes what's promising or what works.

Up at level 5 we have experiments that randomize treatment and control groups/areas, because (in principle) they can rule out most of the problems associated with less rigorous studies. For example, by limiting our capacity to influence where or to whom a program is applied, we remove (or at least reduce) the risk of selection bias. I have encountered police commanders who all but demanded their pet area receive a patrol intervention, only to be thwarted by randomization. Would the program have worked in those areas anyway, or just because they were paying attention to those areas already?

Good randomization studies can rule out a large swathe of competing explanations, and this approach remains the strongest research design for testing many ideas (I don't recommend it for parachutes).

It is sometimes, incorrectly, argued that randomization is unethical because it withholds benefits from the control units or areas.

We have evaluations precisely because we have not proven certain programs work. Randomization is therefore a highly ethical approach to gauging the value of spending taxpayer dollars.

Finally, randomized experiments usually contribute to the 5* meta-analyses that examine the totality of evidence for a crime reduction program. The real world is messy, and systematic reviews conducted by trained analysts are vital tools to help us make sense of complicated areas. Within a systematic review, a single study find its place in the wider entirety of research, making its contribution to policy knowledge.

There is of course much more to understand about this area, and there are numerous verbose books about research design and evaluation methodology. Until you are brave enough for that, I hope this short, non-technical overview helps you understand the graphic and appreciate that not all research is created equal.

Cambridge comes to Hong Kong

Marita Muller

Cambridge University's Masters in Applied Criminology and Police Management, chaired by Professor Lawrence Sherman, is effectively a Masters Degree in evidence based policing. The two-year program provides current or future law enforcement leaders with the knowledge and skills to become evidence based policing practitioners – and to drive lasting change within their organisations. The second year of the program is spent developing a thesis which will be of benefit to the student's organisation.

During 2017-2018, the Cambridge program was completed in Hong Kong for the first time.

This allowed students from the Hong Kong Police Force, Hong Kong Corrections Service, Hong Kong Customs and the Hong Kong Independent Commission Against Corruption to complete two components of the program per year at the Hong Kong Police College. The Hong Kong Police Force is investing heavily in building the capacity of its staff in the field of evidence based policing – with over twenty members commencing the program each year.

A handful of Australians from the Australian Federal Police (AFP), Australian Border Force and the Australia New Zealand Policing Advisory Agency were fortunate enough be part of the Hong Kong student cohort in 2018.

The program taught participants that most of the problems law enforcement agencies face are strikingly similar, like the universal problem of "how to do more with less". I personally found the opportunity to learn from the experiences of diverse jurisdictions to be a real highlight of the program. Sharing evidence-based studies from around the world can guide the best use of policing resources and improve operational outcomes… without having to reinvent the wheel.

The capacity building of agencies with a national policing focus, such as the AFP, creates opportunities for evidence based policing to expand beyond the traditional community policing arena. Theses relating to online child safety, reducing parcel post drug importations and reducing recidivism of online child sex offenders are all under development by AFP students during 2019.

Author biography

Marita Muller is a Federal Agent of the Australian Federal Police currently undertaking the Masters in Applied Criminology (Police Management) at Cambridge University. She is developing research on reducing recidivism of online child sex offenders.

New Zealand Police

In January 2019, I was formally appointed as the inaugural Director of Evidence-Based Policing (EBP) for New Zealand Police. Two months later, on the 19 March, the Evidence-Based Policing Service Centre was officially established. It is an exciting time to be working in EBP and there is a huge desire to leverage EBP across all parts of our organisation.

To be the safest country, we need to know everything we do tactically, operationally and strategically works. We need our frontline, and tactical and operational decision-makers to have the right tools, techniques and evidence to enable them to deliver our objectives and know their decisions will help New Zealanders to be safe and feel safe.

For New Zealand Police, EBP is about testing how effective our actions, approaches and strategies are, researching emerging issues and trends, and developing new approaches to how we serve New Zealanders and add to the body of national and international literature. EBP enables us to continually improve the way we work when evidence shows there is a better way.

EBP, now a fully operational Service Centre, initially began to take shape back in December 2017 with the commencement of our partnership with the University of Waikato, Environmental Science Research and Vodafone NZ and the opening of a collaborative research space in Wellington known as the EBP Centre. This first year has set a strong platform for the future with the focus on establishing EBP as a Service Centre operating model and building the profile of EBP both within New Zealand Police and with our external partners.

Having seen the impact of research and evidence as a result of initiatives such as Family Violence Intervention Evaluation and the Crime Harm Index, the next step is to expand the reach of EBP and embed a foundation of evidence-based best practice throughout all of our operations and provide confidence to our frontline, and wider New Zealand public, that what we do, does work.

Today, the establishment of the new Service Centre brings together an outstanding team of professionals, who bring tremendous knowledge and skills from a broad array of disciplines. Working together will significantly boost the quality and scope of EBP and in turn enable EBP to be seen as a trustworthy, multi-disciplinary and high-performing Service Centre of excellence.

The benefits of the EBP Service Centre have already been demonstrated following the tragic events of the Christchurch Mosque attacks on 15 March. The teams pulled together their expertise to support Police leadership in making evidence-based decisions by producing two key pieces of research presented in short and succinct research briefs. The feedback from frontline practitioners and key leaders was extremely positive. These research briefs follow in the next few pages of this journal. The EBP Service Centre also designed the process for capturing lessons learnt which will enable us to become even better at responding to any future events.

Over the next twelve months I will be working extremely hard to build innovative partnerships with new academic and strategic partners both nationally and internationally to ensure we take every opportunity to work collaboratively to improve the way EBP informs decision making in New Zealand and Internationally.

The New Zealand Police EBP model has five key success areas:

1. Enable New Zealand Police to achieve our strategic goals
2. EBP is integrated into all aspects of our organisation, from how we recruit people to how we deploy our people and resources.
3. A culture of innovation and learning is enabled and embedded.
4. We are recognised as making a significant contribution to national and international knowledge on crime science by working collaboratively with our partners.
5. We create strong partnerships with others who share our aspirations

It is truly a very exciting time to working in the Evidence Based Policing Service Centre, I feel extremely privileged to have been appointed as the Director. I have overwhelming support from the New Zealand Police Executive to truly embed EBP across our organisation. I look forward to working with colleagues from across Australian and International jurisdictions to demonstrate the importance of evidence led police services.

Superintendent Bruce O'Brien
Director: Evidence Based Policing
New Zealand Police

Evidence to inform Operation DEANS

Purpose

This brief provides a summary of literature relating to the New Zealand Police response to the shootings at the Al Noor Mosque in Deans Ave, continued at the Linwood Islamic Centre resulting in the deaths of 50 people and injuries to another 50 people.

Brief

EBPC Research Evaluation staff were tasked with providing a mini-systematic review of the literature relating to the following key areas:

1. Likelihood of second attack and timings
2. Offender motivation and characteristics
3. Key lessons learnt for Law enforcement
4. Prevention opportunities
5. Common findings from any commissions of inquiry and reviews into causation or missed opportunities
6. Reassurance patrolling – what is it and how should we be doing it?

Our approach

A literature search for keywords relating to the research questions above was requested from the New Zealand Police Knowledge and Information Services (KAI) and included both published academic and grey literature. An initial assessment of the material highlighted that we would have to narrow the focus of the brief. The KAI team identified other staff who were working in different parts of the business on similar themes, so we made contact, discussed priorities and narrowed our focus to the theme likely to have the most immediate impact. This was reassurance policing with a specific focus on the aftermath of terror events.

The other areas of research were identified as either being more appropriate for Intel or were already being covered by other groups. Any research gaps identified after this first draft can be developed over the next few days or weeks.

What were the findings

Para-militarisation and community policing

Forst (2014), in the Oxford handbook of Police and Policing, points out that Police were given a much more central counterterrorism role after the events of 9/11 in the USA. Based on this central role, the author discussed the pitfalls and merits of different practices including para-militarisation of Police and community policing.

There seems to be two main issues which should be considered: 1) the risk of hyper-vigilance, which leads to the waste of resources and aggravated threat perceived by segments of the population which are surveyed; and 2) the risk of excessive para-militarisation, which can be fuelled by media panic and take attention away from more effective strategies for crime control, as pointed out by Skolnick and Fyfe (1993) and cited by Forst (2014; p. 633).

Further, when Police react disproportionately to the threat intended by terrorists, it has the possibility of causing more harm to the public than the terrorist acts, handing a strategic victory to the terrorists. One of the alternatives is 'building bridges' with and within communities. This includes community policing which prioritises "public safety through commitment to the community" (Forst, 2014; p. 636). According to Forst (2014), community policing would enable the connection between Police and community to keep going during times in which Police has to take part in counterterrorism roles.

Murray (2005) in a review of literature emphasised that community policing and para-militarism can both exist in a given moment in time, but should exist always under the umbrella of community policing. According to the author, an ideal community police officer should: 1) commit to community consultation and problem solving; 2) be open and accessible in the provision of a service; 3) be creative and innovative in promoting solutions to problems and crime prevention; 4) be free to exercise discretion at the lowest level of policing; and 5) have excellent communication skills so a bridge is built with community.

Communication

A study by Power, McManus, Lynch and Bonworth (2016) confirmed the importance of excellent communication skills in policing. In this study, findings suggested that armed police were perceived as the second most reassuring security measure by the public when compared to other tactics. However, this relied on informed awareness campaigns to explain to the population that the presence of armed police was only a security measure rather than for further response (e.g. not seeking further offenders). This highlights the importance of the coexistence between para-militarisation and community policing tactics.

The report by Straub et al. (2017), which focused on a specific terrorist attack in Orlando (USA), highlighted the importance of communication. This report emphasised:

- the importance of unity in the message passed on to the population, so that the ongoing tone of the response is established;
- the relevance of a single pre-existent primary source of information in keeping up the communication with the public;
- the importance of prioritising the needs and requests of the local media before the international media outlets;
- the need to prepare also for questions which put the organisation in a negative light; and
- the importance of being sensitive to the needs of particulars groups.

Parker, Pearce, Lindekilde, & Rogers' (2017) review of 197 official counterterrorism documents and 30 interviews with U.K. and Danish practitioners responsible for designing, commissioning or delivering counterterrorism measures, found that it is important to:

- involve partners in the public, private and third sector when communicating;
- ensure that messages are credible;
- ensure that the message communicated reduces harm;
- ensure message content is consistent and accurate, and its communication is timely;
- make sure similar agendas are delivered by partner organisations; and
- make sure the media passes information to the population in accordance with evidence-based policing.

The article also emphasises the importance of the communication between practitioners, partners and population.

An experimental study by Hofman and Shelby (2017) highlighted the importance of the communication of effective (and not ineffective) counterterrorist measures. The study showed that participants exposed to information about effective counterterrorism measures express greater confidence in the ability of governments to control terrorism and express less concern about the odds of future attacks.

The Global Counterterrorism Forum (GCTF), an international forum of 29 countries and the European Union, has an overarching mission of reducing the vulnerability of people worldwide to terrorism by preventing, combating, and prosecuting terrorist acts and countering incitement and recruitment to terrorism. A 2018 report from the GCTF emphasised the importance of how messages are communicated to the population. The organisation recommended that:

- the dissemination of information after an attack should happen as soon as possible (without compromising the investigation);
- the response should be unified and representative of all agencies involved;
- regular briefings on terrorism related topics to different media outlets should be conducted so relationships with media organisations which can then report accurately on transnational terrorist organisations and the threats they pose can be established; and
- glorifying an offender and stigmatising a group associated with the offender should be avoided.

In another study conducted in Denmark by Dalgaard-Nielsen, Laisen, & Wandorf (2016), researchers found that visible security measures like metal detectors and surveillance cameras elicited an overall positive response from the population. The authors suggest that this might be a result of the high societal trust and trust in the government of Denmark (N.B. the study did not include the attitudes of the population towards the presence of armed guards.) This article suggests that trust is an important factor in determining how the population perceives visible security measures, and that measures aimed at improving public trust in Police should be welcomed.

Victim Focus

The report 'Supporting victims of terrorism' by the United Nations (2009) highlighted the importance of connecting, for instance, with the victims of terrorist acts. In this report, based on a symposium held by the United Nations, victims emphasised how they would like their stories to be promoted instead of the voice and motives of terrorists.

The report emphasised that victims would like their dignity to be protected, to have their rights defended, to be provided medical and psycho-social support, to be provided financial assistance, to feel solidarity from others, to have more media coverage of victims, and to use victims' voice to prevent further acts of terrorism.

In 2018, The Global Counterterrorism Forum (GCTF) report also highlighted the importance of supporting victims and witnesses. They recommended government sponsored outreach campaigns with impacted communities, and public meetings to discuss the attack; that services be put in place to provide social, economic and psychological support; and that protection be provided to victims/witnesses.

Recommended actions

- The continued presence of armed and uniformed Police after a major terrorist attack must be managed to ensure people do not feel they are still/always under threat.
- Messaging must be clear, timely, consistent, and accurate. It is important, when discussing how we will work with and within communities, that messages reduce harm by explaining the reasons for our actions.
- Para-military type actions need to be counterbalanced by strong community policing practices. These community measures should include Police presence and communication, with clear messages for all staff.
- 'Building bridges' within communities ensures that the connection with the community remains strong in moments when Police have to take part in counterterrorism activities.
- Communication of effective (rather than ineffective) counterterrorist measures leads to greater confidence in the ability of governments to control terrorism, and less concern about the odds of future attacks.
- Sensitivity to the needs of the particular group victimised and those likely to face retribution, and inclusion of relevant members of community in press conferences (e.g. IMAM present with officials during press conferences, providing protection during commemorative events and to relevant establishments).
- The sharing of victims' stories, instead of the voice and motives of terrorists, promotes victims' voice to prevent further acts of terrorism.

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Routine arming in response to terror attack

(Note: Time and resource constraints have prevented a more comprehensive assessment, so the results reported in this document must be taken as initial and indicative, and not as outputs of a comprehensive literature review.)

Purpose

This initial evidence scan was produced to inform Operation Deans about the routine arming of Police in response to the shootings at the Al Noor Mosque in Deans Ave and at the Linwood Islamic Centre in Christchurch on the 15th of March of 2019. Evidence Based Policing Centre (EBPC) Research & Evaluation (R&E) staff were tasked with providing a rapid review of the research literature relating to the following key questions:

- Does routine arming make Police safer?
- Does routine arming make the public safer?
- How does routine arming Police affect trust, confidence or Police legitimacy?

Our approach

A literature search for keywords relating to the research questions above was requested from the New Zealand Police Knowledge and Information Services (KAI) and included both published academic and grey literature. An initial assessment of the material obtained highlighted that the literature was not conclusive in answering the three key questions, however this limited scan of the literature can inform discussions on the continued routine arming of Police following the Christchurch mosque shootings. The results of this initial scan of the research literature relate to routine arming of Police, routinely unarmed Police, and variations of each, with a particular focus on responses to significant events. We provide evidence about what arming strategies have been employed and the effects and effectiveness of these in different contexts. The document is structured as follows:

1. the history of arming of police in New Zealand;
2. comparisons between countries which do not have a routinely armed Police force with counterparts which do have a routinely armed police force;
3. safety of police officers and public when routinely arming police;
4. police and public attitudes towards arming;
5. ethical considerations; and
6. key points for discussion when considering routine arming of Police.

The New Zealand Police is the sole agency responsible for policing within New Zealand. Responsibilities include: public safety; order maintenance; criminal investigation; road policing; emergency/disaster response; coronial investigation; firearms regulation; activities relating to organised crime; national security; and counter-terrorism (New Zealand Police, 2005).

New Zealand is one of only five countries in the world that currently do not routinely arm their officers (i.e. firearms on the person). The United Kingdom (except Northern Ireland), the Republic of Ireland, Iceland, and Norway, also do not arm their police officers.

History

New Zealand Police has changed the way in which it responds to its responsibilities throughout the years and this history and in particular the current routinely unarmed status is an important part of police legitimacy in New Zealand.

Before colonization by the British, social control was exercised by tribes and subtribes (Hill, 2012). In the 1830s, when New Zealand started to be acknowledged by the British, naval patrolling and frontier officials without many resources were in charge of managing conflicts between Māori and Pākehā.

From 1840, a military-style police force from New South Wales was used as a temporary measure to establish order and in 1846 the Armed Police Force (APF) was established and Police was effectively paramilitary in nature. This was followed by a focus on occupying and peace-keeping functions and, in quieter areas, it was common to see the emergence of community-based policing tactics among Pākehā.

The New Zealand Constabulary force (armed) was created in 1877 and existed until the New Zealand Police Force (NZPF) was created in 1886 as an essentially unarmed force encompassing all civil constables. The force was acknowledged from the First World War onwards as one of the least coercive forces in the world. The early history of Police in New Zealand of an armed and essentially paramilitary force in response to civil unrest means that routinely arming Police is connected to colonising practices.

In a NZ context, we would have to consider the impact armament would have on our own minority groups with historical low levels of trust in the police. In particular, the impact armament might have on Māori and our commitment to both Māori and the Treaty.

Comparative studies

Norway is often considered one of the more comparable countries to New Zealand in terms of policing in that officers are routinely unarmed. Like New Zealand Police, Norwegian Police carry firearms in their vehicles. Also, Norway serves as a useful comparison for New Zealand in the wake of the Christchurch mosque shootings, in that, Norway adopted a one year period of arming its officers in response to a high threat level following a threat assessment in October 2014. This was then extended to 14 months in the wake of the November 2015 Paris attacks (Taylor, 2016; Vulliamy, 2016). Norway has, however, returned to a largely unarmed Police Service from February 2016.

The experience of Norway is pertinent in that there are some similarities with NZ Police and there have been a number of comparative studies undertaken with neighbouring Sweden where Police are routinely armed. However, there are similarities in terms of weapon density (legal gun ownership), Norway (28.8%), New Zealand (26.3%) and Sweden (23.3%) – ranked 17th, 20th and 22nd in the world in 2018 – are similar (Karp, 2018). Compulsory military service in Norway means most people know how to use a gun.

This provides an opportunity to understand why there are differences in approach in relation to arming police forces.

Much of the literature regarding routinely armed and routinely unarmed police services focusses on a comparison of Norway and Sweden, who, while sharing similar cultural or philosophical backgrounds, are useful for comparison because Norway is routinely unarmed and Sweden is routinely armed. However, some argue that there are also important differences when comparing Scandinavian police forces with regard to officers' use of firearms (Hendy, 2014; Knutsson & Norée, 2010). Differences included the use of warning shots, the proportion of firearm presentation with verbal threats, and actual shots fired.

There are also differences in the way Sweden and Norway report use of firearms: Sweden reports when they discharge a gun, whereas Norway reports when they draw their weapon. Knutsson and Strype (2003) suggest that the Norwegian requirement to report every 'use' of the firearm could make Norwegian officers more cautious about shooting.

They also note that the different arming policies mean that Swedish officers are more likely to use a firearm going about their daily business (sudden encounters) whereas Norwegian officers are more likely to use firearms in 'planned events' or more controlled environment in that in Norway specialist response teams are more likely to use firearms. These contexts result in very different decision-making processes in the two jurisdictions.

These differences highlight the two kinds of police interactions for firearms use (Fyfe, 1993 as cited in Knutsson & Strype, 2003): planned armed (decisions made at every step – anticipation, entry contact, dialogue and information exchange and final decision and aftermath); or sudden encounter (split second syndrome influenced by cognitive biases). In Sweden shots are more likely to be taken in course of doing their day-to-day work whereas in Norway shootings are more likely to involve organised teams (more controlled settings).

Carrying a gun may increase the chance that a firearm will be used to resolve the conflict. Knutsson and Strype (2003) contend that Swedish officers may also feel there is an expectation to handle the situation themselves since they are armed. In Norway, officers must make decision to retreat or handle situation with other methods. In other words, carrying a gun increases the chance that a firearm will be used to resolve the conflict. Others maintain that the strict regulation of weapon use in Norway works in two ways. Firstly, for Norwegian officers shooting is a deviation from normal practice and secondly the time delay in asking for permission provides a more optimal condition for making informed and rational decisions (Myhrer & Strype, 2010).

Hendy (2018) explored in a mixed-method study how police officers attempt conflict resolution in their day-to-day activities using behavioural comparisons of routinely armed officers from South Australia and routinely unarmed officers from New Zealand. Hendy's quantitative analysis found that there were significant differences in the use of control behaviour between routinely unarmed and routinely armed officers in the two jurisdictions, however, the qualitative analysis explored how the type of encounter influenced officer behaviour.

Hendy found no differences in the way that officers from a routinely armed and a routinely unarmed jurisdiction solve conflict, but that officers from South Australia used more and longer control statements. Hendy noted that the research was not able to identify the reason for the difference but that situational factors and legislative differences are important (Hendy, 2018). He observed that the absence of a statutory power to demand identifying details means New Zealand officers use a different 'script' to their South Australian counterparts.

"It was apparent that NZC officers used a different opening 'script' when first speaking to citizens … Rather than directly asking for a name, NZC (New Zealand) officers began the conversation seeking information about the incident itself …(Hendy, 2018)

Armed Police and Public safety

In New Zealand, those opposed to routine arming of Police argue that police frontline staff will not be any safer from being routinely armed and police safety will be reduced by encouraging an increased sense of capability to confront an armed opponent - in contrast to the current tactic of withdraw, cordon and contain for armed specialists to control (Bott, 2010 as cited in Hendy, 2014).

Others claim that practice and behaviour does differ between routinely armed and routinely unarmed officers (Buttle, 2010; Sarre, 1996) while other research suggests that routinely unarmed police officers perceive risk differently to routinely armed officers (Hendy, 2014; Hendy, 2018; Waddington et al., 2009) and that responses to firearm-related incidents differ (e.g. Knutsson & Norée, 2010). Waddington and colleagues (2009) exploration of police behaviour found that German routinely armed officers behaved quite differently to routinely armed officers in Brazil.

Zimring (2017) explores the unique position of the United States of America by comparing both the number of police shootings of members of the public and shootings of police by members of the public with other routinely armed jurisdictions. He concludes that the high number of firearms in civilian hands (over 60 million handguns) are the 'elephant in the living room' of why police in the USA kill citizens so often and are also more at risk themselves of being shot.

Knutsson and Strype (2003) showed that in 30% of Norwegian cases, suspects are harmed, while in 24% of Swedish cases suspects are harmed. However, they also found that 8% Swedish officers were harmed compared with 0% in Norway. Norwegian policy seems not only to minimise harm to civilians but also harm to officers.

Police and public attitudes towards arming

According to a New Zealand Police Association 2017 survey, 66% of members supported routine arming of police officers compared to 48% who were in favour in 2008 (Huffadine, 2019). However, the Police Association does not represent all police staff, and the results of the New Zealand survey appear to be at odds with our overseas counterparts.

A study in Norway of Police College students (N=513) found that attitudes towards arming were split between those that agreed, disagreed, and were undecided (Fekjær & Strype, 2015). When comparing the differences between those who responded 'yes' to arming versus those who responded 'no' or 'undecided', it was found that being oriented towards an operational career, and holding more autonomous attitudes was associated with a positive attitude towards arming (Ibid, p186). Fekjær and Strype also posit that the routine arming of police might also affect the type of police officers recruited in that it could increase the motivation to become a Police officer among some groups ('enforcers') and lessen the motivation amongst others ('reciprocators').

A UK Police Federation survey of over 32,000 officers examined the question of routine arming among federated officers in England, Scotland and Wales (van Mechelen, 2017).

While numbers of those supporting routine arming had increased from 2006 to 2017 (support at 23% and 34% respectively), the majority of officers still did not want to be routinely armed. The modal response to the question on armament (42.5%) was that 'Firearms should not be issued to all police officers, but that more officers should receive appropriate training and be issued with firearms, as and when necessary" (van Mechelen, 2017, p6). Demographically, those officers more likely to support routine arming tended to be male, younger, have less years' service, and work in inner city areas. Of particular interest is when asked what their views would be if routine arming was decided upon - 12% of officers would only carry a firearm whilst on duty if ordered to do so, while an additional 11% said there was no circumstance under which they would carry a firearm whilst on duty.

The results of several survey studies suggest that in routinely arming NZ police officers there is a risk that the types of individuals we recruit to the service will change (Fekjær & Strype, 2015). This could have a real impact on the diversity of our frontline officers in the future. In addition, those officers who are not in support of routine arming may reconsider their role in policing.

In terms of public attitudes, Yesberg and Bradford (2018) examined the public's response to the arming of police officers through a MOPAC (Mayor's Office for Policing and Crime, London) public attitude survey. The survey of nearly 13,000 respondents asked questions regarding support for policy, reactions to armed police – feelings of safety (affect), and trust in police– as well as a number of other variables. The main finding of the research was that respondent's affective response to armed police is important in shaping their response to policies increasing the number of armed officers; and that affect is strongly predicted by trust. So changes in policing policy are largely based on what people already think of police (Yesberg & Bradford, 2018).

Yesberg and Bradford's (2018) research shows that with high levels of trust in the NZ Police support for arming police should be largely positive. However, the reverse of this finding is that those groups with low levels of trust in the police will be least positive toward armament. In their study, the authors found that Black, Asian, and Minority Ethnic groups (BAME), LGBT, and young people were least positive towards armed police and less supportive of policies increasing the numbers of armed police.

Ethics and Policy

Routinely arming or not arming Police is also a question in the realm of moral and ethics. When someone has access to a firearm and legal consent to use it, the person is given the ability to accidentally injure or kill another person. Reiner (2010), as cited in Fekjær and Strype (2015), identifies the importance of the symbolic image of Police when armed. Visibly armed officers signify Police as a practitioner of legitimate State force.

The different way in which countries connect the idea of having legal access to firearms to the idea of having 'licence' to injure or kill someone, directs how legislation, norms and directives about the use of firearms by Police are written. Moll (2006) highlighted the importance of ethics training for police officers in USA. Moll states that Police cannot assume that individuals with their own set of principles and morals hired by the organisation will act according to the organisation principles and values when having access to firearms.

The *Weapons Instructions for the Police* guideline in Norway stated in 2003 that: "There must be no doubt that the police force is normally unarmed and that armament will only occur in extraordinary situations" (as cited in Knutsson & Strype, 2003).

The Basic Principles on the *Use of force and firearms by law enforcement officials* (United Nations, 1990) states that "Law Enforcement officials in carrying out their duty, shall as far as possible, apply non-violent means before resorting to the use of force and firearms. They may use Force and firearms only if other means remain ineffective or without any promise of achieving the intended result" (General Provision 4).

The New Zealand Crimes Act 1961 provides similar provision for New Zealand police officers to only apply 'necessary force' under certain conditions, such as preventing escape and self-defence (Crimes Act 1961). New Zealand Police instructions similarly point out the limited conditions in which police officers can use firearms, as well as highlight the personal responsibility taken for firing a weapon (Police Manual, accessed 28 March 2019). The use of firearms by police officers in New Zealand is currently only reserved for the most extreme of circumstances.

Much of the comparative research undertaken in relation to arming of police describes the often 'incremental' increases in access to firearms that occur in response to shootings of or at police officers or for tougher controls on Police arming when members of the public (suspects & offenders or bystanders) are shot by Police. Buttle (2010) describes that the largely unarmed status of officers in Britain, as a result of a reluctance to abandon the traditional "bobby" style policing, has been accompanied by an incremental process of arming in response to the growth of armed crime and terrorism and officers vocal concerns about safety in the 1990s. However, this has resulted in armed specialist units (ARVs), as Buttle (2010) and Reiner (2000 as cited in Hendy, 2014) maintain that a highly trained and visibly armoured police would not be accepted by the public. Myhrer and Strype (2010) too describes a 'temporal relationship' between police arming and incidents in which Police have been shot and killed, yet in Norway the number of shooting incidents is low and stable.

How a country thinks about firearms and associated legislation and guidelines regarding firearms can be seen in the behaviour of police officers. Comparative studies between Norway and Sweden showed that the number of times guns were discharged was higher in Sweden than in Norway and that police and citizens were injured more in Sweden than in (Knutsson, 2004; Knutsson & Strype, 2003).

Buttle (2010) talks about the New Zealand style of policing that *"eschews firearms as a symbolic gesture that the police trust the public with their safety, which in turn facilitates public trust of the police".* Just as routinely armed police are a symbol of 'control', routinely unarmed police are a symbol of high trust and police legitimacy.

Bott and others also argue that routine arming will negatively impact on the police's ability to 'police by consent' and that it could frustrate the process of community policing (Bott, 2010 as cited in Hendy, 2014; Buttle, 2010). For instance, criminologist Rick Sarre states:

"armed police change the manner in which the police and public interact, specifically that this practice 'alienates' the public from the police and negatively impacts of the process of community policing" (Sarre, 1996 as cited in Hendy, 2014).

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Discussion points

- Our history of arming (as part of the process of colonisation), followed by effectively disarming in the late 19th century, then increased officer access to weapons in the late 20th and early 21st Century, suggests we risk some of the gains we have made in *The Turning of the Tide* partnership between Iwi and Police. Evidence shows that armed or unarmed status will have an impact on tangata whenua as well as ethnic and other minorities. Routine arming could also undermine our efforts in our interactions with people suffering from mental distress.
- We aspire to ideals of Professionalism, Respect, Integrity, Commitment to Māori and the Treaty, Empathy and Valuing Diversity and have adopted a Prevention approach which could be seriously challenged by any long-term arming of Police. In New Zealand, our unarmed status is often debated in the media, either calling for arming in response to shootings of or at police officers or for tougher controls on Police arming when members of the public (suspects & offenders or bystanders) are shot by Police. The research in other jurisdictions indicates that event-driven responses inevitably lead to 'creeping paramilitarisation'.
- Comparative analyses of armed and unarmed jurisdictions of Sweden and Norway has shown that key considerations such as Police and Public safety are influenced by context. Historically, Sweden has had an armed approach and its' citizens accept that approach. Police in Norway, on the other hand, has been largely unarmed apart from a recent response to a heightened terror threat. While Norway has returned to its unarmed status, there appears to not yet be any analysis of organisational or public views on whether to re-arm.
- Perceptions of safety for Police officers and for the public were shown to be influenced in complex ways. While Police advocates often promoted arming to protect officers, the comparisons between Swedish and Norway showed that the unarmed Norwegian police were in fact less likely to be killed or injured than the Swedish routinely armed officers. This could be explained in part by the different sorts of firearms encounters armed and unarmed officers experienced.
- The way in which we police and interact with the public play a crucial role in how we are regarded by New Zealanders. New Zealand already has high ratings for Trust and Confidence and the evidence suggests that we might be more accepting of routine arming. However, trust and confidence ratings are lower for those in our key target groups. Without specific research about whether the public would accept routine arming for a prolonged term we risk reducing perceptions of safety (See earlier research-EBPC Reassurance Research Brief, March 2019).
- In terms of 'wellness' we state that in order to keep our communities safe, we must first keep ourselves safe and well. An area of further research could be to explore our staff perceptions of how they perceived they were perceived during the heightened threat level. This may depend on how proportionate the response is (whether NZ Police remain armed in the short, medium or long term) and t he ability to measure these perceptions.
- Perceptions of how being armed or unarmed influenced respect of the public for Police and their relationship with the public was also complex and an interesting follow-up to the arming of NZ Police in response to the Christchurch shootings would evaluate these perceptions. The following quote from an interview with a member of the public encapsulates the intricacies of peoples' perceptions after such an extreme event:

  "At the moment it's more important than ever. Because on the way here we see Police officers with guns…and it's very different for us… you know it's not the NZ we know" (Christchurch resident ONE News March 27, 2019).

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Policing Domestic and Family Violence: A Review of the Evaluation Literature

Lorraine Mazerolle, Elizabeth Eggins, Michelle Sydes and Lorelei Hine

Introduction

Domestic and family violence (DFV) is a priority issue on political agendas across Australia, with bipartisan support at all levels of government seeking to identify and implement strategies that work to reduce domestic harms. Following the recognition of Rosie Batty as Australian of the Year in 2015, mentions of DFV in Australian media more than quadrupled from 2011 levels (Valentine & Breckenridge, 2016).

This heightened media coverage has put a spotlight on DFV issues, raising public awareness and, in turn, placing criminal justice agencies under considerable scrutiny (Angus, 2015; Special Taskforce on Domestic and Family Violence in Queensland [Special Taskforce], 2015). With each DFV-related death come questions regarding the adequacy of current criminal justice responses.

In reviewing the system's failings, research points to a lack of victim engagement with criminal justice services and a failure by the criminal justice system (CJS) to identify and effectively treat DFV perpetrators (Special Taskforce, 2015). In response to these shortcomings, policing and other criminal justice agencies in Australia have implemented and evaluated a range of interventions targeting DFV.

However, there is inconsistent evidence about policing responses to DFV to prevent recidivism, facilitate offender rehabilitation, improve identification of DFV-related cases or enhance victim engagement and satisfaction with the CJS.

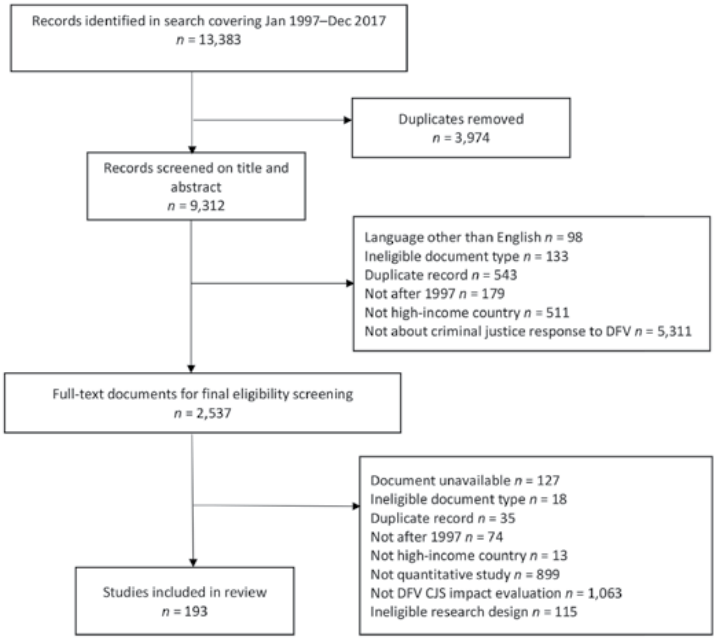
The Evidence for Policing Domestic and Family Violence

Our review adopted a hybrid review approach, drawing on traditional systematic review methodologies and alternative review methodologies that permitted an expedited review of evaluation literature (Arksey & O'Malley, 2005; Levac et al., 2010; Snilstveit et al., 2016). The overall aim was to provide a rapid and broad synthesis of the highest quality available evidence for the effectiveness of criminal justice responses (including policing) to DFV (see Mazerolle et al., [2018]) for a comprehensive summary of the review methodology). The results of the eligibility screening and coding phases are presented in the PRISMA flowchart in Figure 1 (Moher et al., 2009).

The systematic search identified 9,312 records (after removing duplicates). Of these, 2,537 were screened as being about criminal justice responses to DFV at the title and abstract screening stage. Of these potentially eligible records, 127 records were unable to be located via several university libraries. Of the full-text retrieved documents, 193 were screened as meeting full inclusion criteria for the review. These documents were then categorised and coded into policing, courts, corrections or multi-agency responses.

The current paper focuses explicitly on results from the section on responses relating to police or policing (for multiagency interventions that may include police, see the full report by Mazerolle et al., 2018).

Figure 1 PRISMA flow diagram



Results

We identified 26 unique impact evaluation studies that assessed the effectiveness of policing interventions responding to DFV and a systematic review that covered policing as well as other CJS responses to DFV. The policing studies cover a range of intervention strategies, including mandatory arrest, specialised domestic violence units and body worn cameras. These interventions aim to improve a range of outcomes for both victims and perpetrators.

Police Contact:

Our search identified one quasi-experimental study that examined the impact of police contact on victim depressive and post-traumatic stress disorder (PTSD) symptoms (Langille, 2010). Results suggested that police contact (regardless of whether it was self-initiated or other-initiated) was not predictive of victim PTSD symptoms or depressive symptoms at a level of statistical significance (Langille, 2010).

Arrest Strategies

Mandatory and Preferred Arrest

There is little recent evidence to support the efficacy of mandatory arrest policies. Most studies identified found no statistically significant relationship between homicide and repeat victimisation outcomes (see Mazerolle et al. 2018 for full description of studies). In fact, mandatory arrest policies can create further harm, particularly for racial minorities (e.g., Sherman & Harris, 2015). It is also important to recognise that mandatory arrest policies are designed to respond to events involving physical violence, and thus may not be effective in addressing other types of DFV such as financial or psychological abuse.

Sole versus Dual Arrest

Fraehlich and Ursel (2014) examined whether sole arrest (only the woman arrested) or dual arrest (both involved parties arrested) was a

predictor of the way a case was processed by the court (Fraehlich & Ursel, 2014). Results of this quasi-experimental study suggested that sole arrested women were twice as likely to be prosecuted as dual arrested women (Fraehlich & Ursel, 2014). Further, women in dual arrest cases were more likely than women in sole arrest cases to have their cases stayed or be diverted (Fraehlich & Ursel, 2014).

Other Arrest Strategies

A quasi-experimental study by Kernic and Bonomi (2007) used official data from the Seattle Police Department to examine whether perpetrator arrest was associated with police referring the victim to their Victim Support Team when they had been called to an incident. Controlling for a number of confounding factors (e.g., injury, race and marital status), results from this study showed that the Victim Support Team was more likely to be activated if the perpetrator was arrested by police (Kernic & Bonomi, 2007).

Proactive Policing Practices

Using an RCT design, Brame and colleagues (2014) evaluated the effect of proactive policing practices on no-contact orders in DFV cases. Results suggested that victims in the treatment group were more likely to make contact with police or victim advocates, be aware that the no-contact order was in place, and view the violence as stalking or harassment. However, there was no overall clear effect of the proactive policing intervention on victim safety and well-being when compared with business-as-usual practices. The authors indicated that proactive policing, as it was operationalised in this study, was not effective in meeting its aims.

Body Worn Cameras (BWCs)

A quasi-experimental evaluation by Morrow and colleagues (2016) assessed whether police BWCs impacted arrests, prosecutions, and convictions in DFV cases. Results suggested that post-implementation, BWC cases were more likely (40.9%) than the comparison cases (34.3%) to result in arrest. They were also more likely to have charges filed, cases furthered, result in a guilty plea and result in a guilty verdict.

Specialised Domestic Violence Units

An evaluation of a SDVU showed that, compared with standard patrol practices, DFV cases that received the intervention had lower rates of reoffending at both the 18- and 30-month follow-up periods (Exum et al., 2014).

Police Investigation Quality

Stewart (2006) used a 28-item index of police activities to assign a score to police investigations of high quality (14–28), medium quality (7–13), or low quality (0-6) (Stewart, 2006). Court outcomes included in analyses were jail time, probation, fine, and dismissal for lack of evidence (Stewart, 2006). Results of the quasi-experimental evaluation determined no difference in the relationship between the quality of police investigation and court outcomes (Stewart, 2006).

Organisational Characteristics

Zeoli and Webster (2010) examined the effect of police staffing levels on DFV homicides. Results suggest that greater police staffing levels may heighten the ability to make arrests, either because of the availability of more resourcing, or because police departments with more staff were able to create specialised DFV units (Zeoli & Webster, 2010).

Training

Training police officers in best practice approaches to DFV can assist in ensuring the success of an intervention. Smithey and colleagues (2004) assessed the effectiveness of a DFV training model on the time spent at DFV incidents with victims, the number of cases accepted for prosecution, and the number of cases resulting in convictions (Smithey et al., 2004). They concluded that there was no significant effect of the training on these outcome measures (Smithey et al., 2004). Indeed, trained and untrained officers spent about the same amount of time (30 minutes) at incidents, and the rate of case acceptance or conviction did not change between trained and untrained officers (Smithey et al., 2004).

Risk Assessment

The Spouse Violence Risk Assessment Inventory (SVRA-I) was established with a committee of police officers in Israel (Dayan, Fox, & Morag, 2013) and is comprised of 45 risk signs for DFV perpetrators. Dayan et al. (2013) examined whether the using SVRA-I predicted repeated DFV, with an average follow-up period of 26 months for each perpetrator. The SVRA-I correctly predicted that perpetrators in the critical/high risk group were significantly more likely to reoffend than those classified as moderate (Dayan et al., 2013). This tool was also considered more effective than other methods to assess perpetrator risk (Dayan et al., 2013).

Conditional Cautioning

Police officers from Hampshire, England developed an intervention using conditional cautioning called the Cautioning and Relationship Abuse Workshop (CARA). Perpetrators were arrested by police for a DFV incident and randomly assigned to either the control group (simple caution with the condition of no reoffending for four months) or the CARA intervention. Participants who received CARA were required to attend a 2-day workshop designed and delivered by facilitators at a charity called the Hampton Trust.

During the workshop, perpetrators participated in group motivational interviewing style sessions that focused on making them aware of their abusive behaviours, assisting them to accept responsibility for harm, and providing them with conflict resolution strategies for their relationship. Strang and colleagues (2017) evaluated the effectiveness of CARA by examining outcomes pertaining to recidivism and the Cambridge Crime Harm Index (weighted by severity of the crime, as measured by days in prison for each offence).

Results suggested that, at 12-month follow-up, perpetrators in the CARA intervention had 27% less Crime Harm Index severity than perpetrators in the control condition. Similarly, they reoffended less.

Summary

Our review of policing responses includes mandatory arrest, BWCs, arrest versus restraining order responses, and police training. Very few studies focused on conditional cautioning, risk assessment, police contact, proactive policing, investigation quality, and sole versus dual arrest. Our corpus of policing studies was dominated by outcomes such as official recidivism and court processing outcomes (such as decisions to prosecute, convictions, jail time). We identified only a few studies that reported practitioner outcomes. We located no studies that included self-reported recidivism and perpetrator psycho-social outcomes.

Overall, we concluded that there may be backfire effects for policing approaches that involve mandatory arrests or dual arrests. By contrast, our synthesis suggests that police should consider interventions that involve follow-up with victims as well as proactive policing interventions

that increase victim understanding of violent behaviours, no-contact orders and help seeking options. The use of BWCs during attendance at DFV incidents has some early indications of effectiveness.

There is a solid body of evidence to guide some categories of policy and practice decision-making. Yet our review also found that very few studies from Australia met our inclusion criteria. Our review also reveals that the studies tend to focus on IPV between male perpetrator and female victim and that the outcome measures across most evaluation studies tend to focus on physical as opposed to emotional violence.

Acknowledgements

This review was funded by a Domestic and Family Violence Death Review and Advisory Board grant awarded to Professor Lorraine Mazerolle, Ms Elizabeth Eggins, and Dr Michelle Sydes. The authors also gratefully acknowledge the co-funding support from the Australian Research Council Centre of Excellence for Children and Families over the Life Course (project number CE140100027). The full review report can be found here: https://www.courts.qld.gov.au/__data/assets/pdf_file/0006/586185/systematic-review-of-criminal-justice-responses-to-domestic-and-family-violence.pdf

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Assessing Risk in a Law Enforcement Context: The SHARP Sexual Risk Protocol

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Increasingly, risk assessment is a key determinant of a criminal justice response to sexual offenders. With the implementation of sex offender registration in most regions of Australia and around the world, the onus has been placed on law enforcement to manage and mitigate the risk posed by sexual offenders within the community. In the Australian state of Victoria, sex offender registration ranges from eight years to a maximum of life. As such, prioritising the supervision of the steadily increasing number of registered sex offenders has become necessary over their lengthy reporting periods in order to optimise risk mitigation efforts. However, law enforcement agencies are not typically accustomed to the task of risk-based prioritisation and management of convicted sex offenders.

In the broader sex offender field, there is ongoing interest in how risk assessments should be structured to maximise predictive accuracy. Static risk factors are generally regarded as useful for evaluating long-term risk but because they are historical in nature they cannot be used to assess changes in levels of risk over time (Craig, Browne, & Beech, 2008) or the imminence of possible reoffending given changing circumstances in an offender's life. While such actuarial risk assessments (e.g. Static-99, RM2000) can be utilised to assist police in identifying offenders with the highest likelihood of reoffending, the specific circumstances precipitating that risk are likely to shift significantly over the years of offenders' registration. Dynamic risk information allows further refinement of this group, in terms of potential imminence of risk and the presence of concerning risk issues which in turn informs the level of active offender management required.

Dynamic risk assessment tools or guidelines combine known risk relevant factors in order to prioritise intervention and management efforts. Various structured professional judgement guides are now available to assist in this regard and are important in focusing risk mitigation efforts. However, these tools generally rely on the coding of clinical factors, most of which are gleaned from interview. Although police are highly trained, the operational environment often makes it untenable to rely on regular interviews and consistent coding of lengthy, clinically-oriented tools as most police members are not clinically trained. Additionally, the nature of the relationship between police and an offender reporting on a preventative scheme is not necessarily conducive to the collection of detailed and accurate risk-relevant information.

Risk is a complex interaction between an individual's history (static risk factors, developmental problems), psychological problems (dynamic risk factors) and current life circumstances (contextual risk factors) (Craig et al., 2008). These factors are primarily mitigated by personal strengths or environmental constraints. Several meta-analyses have been undertaken to identify the most robust predictors of recidivism (Hanson & Bussière, 1998; Hanson & Morton-Bourgon, 2004; Hanson & Morton- Bourgon, 2005, 2009).

Hanson and Morton-Bourgon (2005) have highlighted that the value of recidivism studies partly lies in their ability to hone in on specific offender features related to sexual relapse. This is important because sex offenders are likely to have many problems, not all of which are related to sexual re-offending. They concluded that the typical sexual recidivist is "not upset or lonely" but rather, "lives an unstable, anti-social lifestyle and ruminates on sexually deviant themes" (Hanson & Morton-Bourgon, 2005, p.1158).

The SHARP dynamic risk protocol is an empirically based tool derived from factors which are well established in the literature as risk predictors (Sexual deviance, History of supervision violations, Antisocial orientation, Risky environment, and Protective factors). The purpose of the SHARP tool is to aid case prioritisation in law enforcement settings, whilst avoiding any objections which may be posed by courts around the expertise of police in using and interpreting risk assessment tools previously designed for clinical practitioners. The schedule represents a move away from "clinical judgement" towards facilitating structured professional judgement by non-clinicians experienced in working with sex offenders.

As such the focus is much more on objective data and observable behaviour rather than clinical judgement or diagnosis. The SHARP harnesses professional experience, offender self-report and official documents readily available in police settings. It supplements actuarial risk information by providing guidance about where to focus police monitoring capability and disruption efforts, and enables a shift in focus with any observed changes over time. It aims to identify current risks to ensure the prioritisation identified is presently relevant to the offender's management.

The SHARP was developed based on the most prominent factors associated with sexual re-offence risk, which have been repeatedly identified and extensively studied over the years (e.g. Craig, Browne, Stringer & Beech, 2005). A significant further consideration for item selection was also around information routinely available to police. This was considered crucial to enable police to consistently code these factors based on self-report, observable behaviour or other verifiable data. The four risk factors included in the SHARP, are Sexual Deviance, History of Supervision Violation, Antisocial Orientation and Risky Environment. A broad category of protective factors have also been included in the model due to their potential to assist in the mitigation of risk thus further directing police focus on offenders high in risk factors and low in protective indicators.

Sexual deviance is well established as one of the strongest predictors of sexual recidivism (e.g. Hanson & Bussière, 1998; Hanson & Morton-Bourgon, 2004, 2009). Deviant sexual interests refer to enduring attraction to sexual acts that are illegal (e.g. sex with children, sadistic rape) or highly unusual (e.g. fetishism). Whilst all sexual offending is socially deviant, individuals who commit these offences do not necessarily have enduring sexual preferences for this behaviour (Hudson & Ward, 1997; Marshall, 1997 as cited in Hanson & Morton-Bourgon, 2005). Terms such as "child molester" and "paedophile" are sometimes used interchangeably though they are not synonymous (Abel & Harlow, 2002; Cohen & Galynker, 2002; Davis, 2013; Johnson, 2002; Lanning, 2010; Murray, 2000).

In fact, studies show that many child molesters are not preferential paedophiles (Greenber, Da Silva, & Loh, 2002). Paedophilia, and Paedophilic Disorder, are psychiatric terms, with the latter denoted as a mental disorder in the Diagnostic and Statistical Manual for Mental Disorders, Fifth Edition (DSM-5). It does not require an overt act to fulfil the diagnosis and therefore may not be criminal (Scott & del Busto, 2009). In contrast, child molester is a legal term denoting that a criminal act against a child has occurred, regardless of the motivation (Boer, Eher, Craig, Miner, & Pfafflin, 2011).

There are clear challenges inherent in the detection of sexual deviance in a law enforcement environment in the absence of extensive clinical interviews, psychological, polygraph or phallometric testing. However, what is typically available to police are offence details, including demographic (perpetrator/victim) data relating to those involved. Police also hold information regarding alleged offences which may or may not have proceeded to trial for a range of reasons. The Screening Scale for Paedophilic Interests (SSPI) (Seto & Lalumiere, 2001) has been found to significantly predict paedophilic interests and relies on this type of information. It is a brief screening scale used to identify paedophilic interests for use with sex offenders who have offended against victims under 14 years of age. Using simple, objective data readily available to police, the SSPI has been found to be associated with phallometrically measured sexual interest in children and sexual recidivism and hence was recommended by the authors for triage and risk management purposes. This measure is therefore embedded in the SHARP sexual deviance item to assist in coding presence or absence of this important factor. Since the SHARP was developed a new version of the SSPI, known as the SSPI-2 has been released that has a slightly improved relationship with paedophilic interests (Seto, Sandler, & Freeman, in press; Seto, Stephens, Lalumiere, & Cantor, in press). This will be embedded into the SHARP in the future.

The second SHARP risk factor, a history of lack of cooperation with supervision or rule violation has been shown to be associated with recidivism due to its link to anti-social orientation (Hanson & Morton-Bourgon, 2004). This factor denotes that incapacity to conform to formal sanctions, rules or remediation attempts increases the possibility of recidivism. It may be indicative of attitudes and behaviours leading to reduced supervisory support which, in turn, make it more likely that an offender will fail to monitor high-risk situations (Boer, Hart, Kropp & Webster, 1997). Hanson & Morton-Bourgon (2004) found in their meta-analysis that all indices of rule violation were significantly related to recidivism (i.e. non-compliance with supervision, violation of conditional release). Lussier, Deslauriers-Varin, and Ratel (2008) also demonstrated that being uncooperative with the supervision process was one of the most robust general risk predictors among their sample of offenders on extended community supervision. Similarly, supervision violations were reported for 76% of an Australian high–risk sex offender sample subject to post-sentence orders (Doyle, Ogloff, & Thomas, 2011).

Anti-social orientation, the third factor in the SHARP, is the second most robust predictor of sexual recidivism (Hanson & Morton-Bourgon, 2004, 2005). This usually refers to anti-social personality (including psychopathy) and anti-social traits. Anti-social orientation can facilitate an offence because it is evident in individuals who are either willing to hurt others, can convince themselves they are not harming them or feel unable to stop themselves (Hanson & Morton-Bourgon, 2005). Therefore, their attitudes and anti-social characteristics will likely be evident through a range of criminal lifestyle variables as well as sub-criminal deceptive, irresponsible or impulsive behaviour. Although the anti-social orientation item in the SHARP is not diagnostic, its behavioral indicators approximate those that would be expected in anti-social personality disorder.

The fourth risk factor included in the SHARP encompasses all aspects of the offender's environment which may increase risk. It covers three key features of an offender's environment, namely hazardous conditions, lifestyle instability and lack of supports, where a combination of these features renders an offender's environment as risky. Hazardous conditions are denoted by the presence of circumstances which would be considered criminogenic (i.e., conducive to offending). Depending on the offender and the circumstances under which the original offending occurred, hazardous conditions could be the presence of drugs/ alcohol, weapons, potential victim group (e.g. children) (Webster, Douglas, Eaves, & Hart, 1997). Lifestyle instability is reflective of an offender's poor self-regulation which has an established link to recidivism and is likely apparent in their employment, accommodation and relationships (Hanson & Morton-Bourgon, 2004). The lack of pro-social supports is also taken into account when coding this factor as the impact of any identified risk factors is likely to be worse in the absence of supervision and social support.

The fifth aspect of the SHARP refers to protective features of the offender and their environment. Protective factors are not simply a reference to the absence of certain risk factors. They are characteristics of the offender and their environment or situation which reduce the risk of further sexual offending (Vogel, Ruiter, Bouman, & del Vries Robbe, 2009). Protective factors or personal strengths are proposed to either mitigate the effect of static/ dynamic risk factors or independently influence anti-social behaviour (Miller, 2006). The value of protective factors is said to lie in their capacity to further refine risk models, though the literature in this area is in relative infancy to that of risk. In other words, a failure to consider protective factors may lead to over-estimation of risk in many instances which is considered costly both to the offender in terms of personal liberties but also to society, in terms of financial costs of corrections, police and post-sentence supervision schemes.

The piloting of the SHARP risk protocol was undertaken with Victoria Police between 2013 and 2016. The Offender Management Team within the Sex Offender Registry office consists of public service staff with suitable training and experience regarding risk assessment and offender management. The current study reflects an initial validation of the SHARP in its original format using specific coding rules to ensure consistency.

Method

Sample

447 SHARP assessments conducted for male offenders with an identifiable victim during 2013 and 2016 were coded under the SHARP guidelines and then were included in the analysis. A number of completed assessments had to be excluded on the basis that they did not contain sufficient information to code the items and they were therefore deemed incomplete. Additionally, female offenders and Child Exploitation Material (CEM)-only offenders have been excluded as research suggests these groups may have their own set of risk predictors and manageability considerations.

The time free for the cases analysed ranged between 5.4 months to 12.6 years with an average of 5.4 years at risk within the community. It is noted that, 32% of the sample received custodial sentences for the offences for which they were registered (ranging from 1.2 months to 9.08 years). 17% of all Registered Sex Offenders (RSOs) within the sample went on to serve time in prison whilst registered (ranging from 1 day, to 5.6 years in custody). The reported time at risk accounts for the variation based on custodial periods.

Coding

In line with coding guidelines such as the Sexual Violence Risk (SVR-20), each SHARP factor (Sexual Deviance, History of Supervision Violations, Antisocial Orientation, Risky Environment, and Protective Factors) was coded as present, partially present or absent. The results were then assigned a numerical equivalent (2= present, 1= partial, 0= absent).

Total scores for the SHARP were derived by summing the scores for the S, H, A, and R variables and then subtracting the protective score on the P item from the SHAR items. However, given that such scores may potentially obscure the relevance of protective factors, analyses were also conducted on just the risk factors (SHAR) and on the individual items themselves. In the rare cases in which items were unable to be coded, these variables were coded as zero (i.e., absent) for the purposes of the current analyses and no pro-rating was

Table 1 – Breakdown of RSO sentence and time at risk

	Sentence on registrable offence	Total time at risk since registration	Time in custody since registration	Days at risk, less time in custody since registration
% of offenders/RSOs	32% = custodial sentence		17% of RSOs	
Average	786 days (25.8 months/2.15 years)	2062 days (67.7 months/5.6 years)		1968 days (64.7 months/5.4 years)
Min	39 days (1.2months)	548 days (18 months/1.5 years)	1 day	165 days (5.4 months)
Max	3305 days (108.6 months/9.08 years)	4598 days (151.1 months/ 12.6 years)	2038 days (67 months = 5.6 years)	4598 days (151.1 months/ 12.6 years)

required. This strategy was thought to have some ecological validity, as real-world risk assessments often must proceed with some missing information.

SHARP total scores were spread over the full possible range of -2 to +8 with a mean of 2.52 *(SD = 2.20).* With the protective factor removed, scores on the SHAR also covered the full possible range from zero to +8, with a mean of 3.43 *(SD = 1.89).*

Analysis

Predictive validity was assessed using the both the Area Under the Curve (AUC) statistic from receiver operating characteristics (ROC) analysis, as well as the point-biserial correlation coefficient (r_{pb}). All analyses were computed using the Statistical Package for the Social Sciences (SPSS).

Results

The recidivism rates for the 447 participants were 20 (4.47%) for sexual recidivism, 41 (9.17%) for violent recidivism, and 163 (36.47%) for general recidivism. The relationship between the SHARP items and these three forms of recidivism are presented in Tables one, two, and three.

Table 2 – Relationship of SHARP Items and Total Scores with Sexual Recidivism (4.47%)

Item/Scale	r_{pb}	AUC	AUC 95% CI
S	.11*	.637	.502 - .772
H	.07	.583	.452 - .714
A	.11*	.629	.504 - .754
R	.18***	.716	.599 - .832
P	-.09*	.389	.273 - .505
SHAR	.18***	.750	.655 - .844
SHARP	.18***	.759	.675 - .843

Note. * = p < .05, ** = p < .01, *** = p < .001.

It can be seen that, as hypothesised, the four risk items on the SHARP had positive relationships with sexual recidivism, although the H item did not reach statistical significance.

Furthermore, the protective item (P) had a modest negative relationship with sexual recidivism. However, the inclusion of the protective factors added very little to the score derived from the risk factors alone. The most potent risk factor was the environmental item (R), but the combination of the various items had the best relationship with sexual recidivism.

It should be noted that, while the correlation coefficients were all relatively low, this was inevitable when the recidivism rate was so low. Indeed, the AUC values indicated that the ability of the SHARP, and most of its items, to differentiate between recidivists and non-recidivists was quite impressive. Indeed, 76 percent of the time a random recidivist would have a higher score on the SHARP than a random non-recidivist.

Table 3 – Relationship of SHARP Items and Total Scores with Violent Recidivism (9.17%)

Item/Scale	r_{pb}	AUC	AUC 95% CI
S	.06	.555	.465 - .645
H	.24***	.721	.643 - .800
A	.31***	.773	.702 - .844
R	.24***	.711	.627 - .794
P	-.13**	.385	.295 - .475
SHAR	.35***	.829	.776 - .882
SHARP	.34***	.824	.767 - .880

Note. * = p < .05, ** = p < .01, *** = p < .001.

In regard to violent recidivism, it can be seen that all of the SHARP items had statistically significant relationships with violence, with the notable exception of the S item. This was not unexpected. Indeed, sexual deviance is a potent risk factor for sexual recidivism, but not for non-sexual offending. In contrast, antisocial orientation and rule violation were potent risk factors for violence. However, once again, the SHARP total score was the best predictor. Indeed, the SHARP had superior predictive validity for violent recidivism, although the inclusion of the protective item very slightly subtracted from that obtained from consideration of the risk factors alone.

Table 3 – Relationship of SHARP Items and Total Scores with General Recidivism (36.47%)

Item/Scale	r_{pb}	AUC	AUC 95% CI
S	-.03	.484	.429 - .540
H	.11*	.559	.504 - .615
A	.28***	.652	.599 - .706
R	.29***	.654	.601 - .707
P	-.17***	.410	.354 - .466
SHAR	.26***	.650	.595 - .704
SHARP	.27***	.657	.603 - .711

Note. * = p < .05, ** = p < .01, *** = p < .001.

Finally, in regard to general recidivism, the SHARP items continued to show predictive validity in the hypothesised directions, other than the S item, which, not unexpectedly, had no relationship with general recidivism. The R and A items were the most potent individual predictors, which is not surprising given that they reflect environmental concerns and antisocial orientation. The protective item P added very little to the predictive validity of the four risk factors alone, but did not subtract from predictive validity like it did in regard to violent recidivism.

Taken together, the results indicate that the SHARP total score has moderate predictive validity in regard to general recidivism, a moderate-to-large relationship with sexual recidivism, and a large relationship with violent recidivism. Furthermore, despite the minimal number of items, predictive validity was comparable to other published structured and actuarial tools. Importantly for the purposes of using this instrument as part of a structured professional judgment approach, the various items differed in their predictive power depending upon the type of re-offending.

DISCUSSION:

The analysis of SHARP items indicated that Sexual deviance, Anti-social orientation, Risky Environment were all statistically significant predictors of sexual recidivism. History of supervision violation emerged as a statistically significant predictor of violent and general recidivism which is still particularly relevant in a law enforcement environment.

It was concluded that in a law enforcement setting, the four risk items in the SHARP were able to highlight particular risk-relevant problems which may be mitigated with strategies available to police. The focus is not on diagnosis or treatment targets but on problematic behaviour and proximity to high risk situations where police intervention is viable.

The fifth aspect of the SHARP, namely protective factors, were analysed alongside the abovementioned risk factors but they offered little in the way of incremental predictive validity to the results of the four risk factors alone. It was hypothesised that the presence of protective factors would mitigate against identified risk and in practical terms indicate the need for less management effort from police case managers. A number of issues likely factored into this apparently weak finding. For instance, protective factor information is less readily available in police databases and the likelihood that these factors are adequately explored at interview is low in the absence of further training. Thus, missing information and a lack of understanding of the importance of protective factors limited the possibility of finding incremental predictive validity to the SHAR items. Therefore, this may warrant further investigation with more specific variable coding suggestions. A useful guide in this regard may be the SOAPP model postulated by Boer (2013) which incorporates five categories capturing the majority of factors of a protective nature, namely, social support, occupation, accommodation, programs and plans.

A further finding of note arose during the data coding phase. It was clear that in the course of completing the SHARP certain risk factors were identified as triggers or precipitants to offending which were not apparent at the time of coding. For instance, there may be clear evidence that frequently using public transport signals an increase in risk for an offender who has targeted stranger victims at railway stations. However, at the time of coding the offender had recently exited custody and there were no indicators in his lifestyle suggesting this is currently occurring. In general, there may be major life transitions, triggers and precursors to offending which warrant action from a police case manager, which may not be currently in place. The newly developed "proximal risk factors" in the SHARP protocol allows the capture of these potential risk indicators. They are highlighted as issues specific to the offender which require immediate risk mitigation action though they do not contribute to the current risk rating of the offender. This is wholly consistent with the structured professional judgment model of risk assessment, which aims to provide an individualised assessment that is grounded in an empirical evidence base (Davis & Ogloff, 2008).

Overall, the current research demonstrated the potential value of the SHARP risk protocol in police settings. In practice, the tool is proving useful in guiding the risk mitigation efforts of police based on evidence-based prioritisation. Moreover, the current validation study indicated that a reasonably brief instrument, involving just four risk factors and a protective item, that are all easily scored from official police records, can achieve a moderate-to-high level of predictive validity. Indeed, the SHARP's ability to differentiate recidivists from non-recidivists is comparable to that of more elaborate instruments designed for clinical use. Such results, when used in a structured professional judgment fashion, have the potential to rank order offenders that need the most attention and thus contribute to the efficient allocation of police resources.

Opportunities for further refinement of the model exist given the adoption of the SHARP in three other Australian jurisdictions since the validation study was conducted (Queensland, Western Australia and South Australia). Replication of the validation study is ongoing in Queensland and the possibility of combining data across states is currently being explored in order to gain further insights into robustness of this predictive model. Future research will also focus on the potential applicability of some of the SHARP factors to an online sex offender cohort with a focus on identification of factors that are generalisable and unique for this growing group of offenders.

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Using an Evidence-Based Approach to Establish the Child Sex Offender Register in NZ

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Abstract

The Child Protection (Child Sex Offender Government Agency Registration) Act 2016 established a register of persons convicted of sexual offending against children in New Zealand. The Register provides government agencies (rather than the public) with information about registered persons in the community. The legislative intent is to provide government agencies with the information required to effectively monitor individuals in the community, thereby reducing sexual reoffending against children as well as assisting in more rapid resolution of cases. This article summarises how the development of the Register and the operational framework have been informed by an evidence-based approach. It also details the four-year programme of evaluation that is informing enhancements to policy, implementation and practice, and will determine whether the intended outcome of reducing reoffending is being achieved.

Background

In 2012 a high profile case involving a known high risk child sexual offender was prominent in the New Zealand media (https://www.nzherald.co.nz/nz/news/article.cfm?c_id=1&objectid=10796988). The individual involved had been able to teach at multiple schools under several different assumed names, whilst under the oversight of the Department of Corrections (on a 10 year Extended Supervision Order[1]). The case highlighted gaps in information sharing between government agencies and numerous recommendations were made by the Ministerial Inquiry (Smith and Aitken, 2012).

In order to strengthen intelligence gathering and information sharing on known persons who have sexually offended against children, a Centre for the Impact of Sexual Offending (CISO) was established in November 2013. This centre provided a central location for the collection, analysis and sharing of Corrections and Police information on persons who have been convicted of committing child sex offences. At the time of CISO's inception there was no legislative mandate to enable the collection of a range of up-to-date information, and so CISO was limited in its ability to mitigate and manage the real time risks posed by individuals with a history of sexual offending against children in the community.

In 2014 the government introduced public protection orders (civil commitment[2]) and enhanced extended supervision orders as a further means of protecting the public from high risk sexual and violent offenders. That same year the government introduced what is now known as the Child Protection (Child Sex Offender Government Agency Registration) Act 2016 to parliament.

In her opening address to Parliament at the Bill's first reading on 15 September 2015, Minister Tolley (then Minister for Social Development) stated:

> *The establishment of a child sex offender register will further enhance the safety of our children by ensuring that the appropriate agencies have the information that they need about registered child sex offenders who are living in the community, particularly when they are no longer subject to oversight by the Department of Corrections. (Tolley, 2015) The New Zealand Child Protection Act 2016.*

On the 14th October, 2016 the Child Protection (Child Sex Offender Government Agency Registration) Act 2016 came into effect.

> *The purpose of this Act is to establish a Child Sex Offender Register that will reduce sexual reoffending against child victims, and the risk posed by serious child sex offenders, by—*
>
> *(a) providing government agencies with the information needed to monitor child sex offenders in the community, including after the completion of the sentence; and*
>
> *(b) providing up-to-date information that assists the Police to more rapidly resolve cases of child sexual offending.*

The legislation details what information must be held on the Register, as well as the roles of Police, Department of Corrections and other specified agencies. It also stipulates the information sharing practices that are to occur between government agencies in the interest of public safety.

The legislation requires that any person of 18 years of age or older, convicted of a qualifying offence and sentenced to a term of imprisonment must be automatically placed on the Register. Those persons convicted of a qualifying offence and sentenced to a community-based order can be placed on the Register at the Judge's discretion. The length of time that an individual remains on the Register depends on the nature of the qualifying offence and is either 8 years, 15 years or life. Persons entering into New Zealand who have been on overseas registers and convicted of a corresponding qualifying offence are also placed on the Register.

The legislation details a number of reporting requirements for those persons placed on the Register. These include personal details such as; name and names known by, time frames known by respective names, date of birth, residential address and addresses frequented, name, sex and date of birth of each child who resides in same household, the name of the principal caregiver of the child, postal address, employment details and address of employment, club or organisation memberships, vehicle details, tattoos, scars or distinguishing marks, passport details, phone numbers, internet service provider details, online networks and social media membership details, websites or domains owned or administered/managed, and, email addresses.

Persons on the Register must also notify Police of any changes in the aforementioned details within specified time periods, generally 48-72 hours. The Act also allows Police to take photographs and fingerprints of those persons on the Register. Failure to comply with any of these reporting requirements can result in breach action being taken. The collection of this information and its dissemination between government agencies is overseen by a central Registry team, comprising of compliance and intelligence arms.

At the time the Register came into effect (October 2016) a total of 1,736 individuals were registered, of which 1,336 were classified as Class 3, meaning they will be on the Register for life. There are now (March 2019) 2,528 individuals on the Register, of which 1,789 are Class 3. At the present time, 1,152 registered individuals are living in the community and 615 of these are being managed by Police (the remainder are managed jointly by Police and by Corrections).

Development of the New Zealand Child Sex Offender Register

Internationally, register practices and policies vary widely. In the United States (US) all registers are public with varied community notification requirements; some have risk management practices, some are based on empirical risk assessment processes and some are based on offence category. In addition, there is variability in terms of which agency has oversight of the registers and their policies and

processes, and there are therefore differences in the philosophies motivating register practices. In the US, the Sex Offender Registration and Notification Act (SORNA) 2006 was brought into effect to provide a comprehensive set of minimum standards for sex offender registration and notification across the US and to reduce state wide variations in registration and notification policies (Letourneau, Levenson, Bandyopadhyay, Sinha, & Armstrong, 2010). SORNA also set classification tiers for registered persons. These classification tiers have subsequently been found to be a poor indicator of relative risk (as assessed by actuarial risk measures) and consequently are likely to result in a risk management system which is not evidence based (Zgobd, Miner, Levenson, Knight, Letourneau & Thornton, 2016).

In the United Kingdom registers are overseen by the respective police constabulary, and all registered persons are subject to management through a Multi-Agency Public Protection Arrangement (MAPPA), – an arrangement between "responsible authorities" tasked with the management of registered persons (Ministry of Justice, 2019). This arrangement sets out risk assessment practices and risk management plans across all countries in the United Kingdom, although there are legislative differences between Scotland, England, Wales and Northern Ireland. Evaluation studies of MAPPA provide evidence that inclusion of robust risk management practice is effective in reducing sexual reoffending against children (Peck, 2011).

So why then, did the New Zealand government implement a child sex offender register? Although there is a large body of evidence suggesting that registries appear to have no impact on reducing recidivism among convicted sex offenders (Lobanov-Rostovsky & Harris, as cited in Phenix & Hoberman, 2016), those jurisdictions which *have* observed a decrease in sexual recidivism have utilised risk management frameworks (RMFs) based on assessed risk. The New Zealand register was developed on the basis that the RMF would be pivotal to its success in reducing recidivism.

The design of the New Zealand register has been informed by international best practice, with measures in place to mitigate some of the risks that have been identified in other jurisdictions; human rights and privacy concerns, maintenance costs, and the possibility of stigmatising offenders which can have the effect of increasing re-offending (Willis & Grace, 2009). In learning from overseas research, New Zealand's register does not have a community notification component. Overseas notification laws have been found to have no impact on reducing recidivism (Letourneau et al, 2010) and in some studies the practice has been found to increase recidivism (Freeman, 2009; Prescott & Rockoff, 2008).

Development of New Zealand Police Risk Management Practice

Although not legislated, the government of the day agreed that the risk management framework (RMF) be jointly developed and collaboratively administered by the Department of Corrections and New Zealand Police (CAB Min (14) 20/3). This was foreseen as being pivotal to the success of the Register in reducing reoffending.

Evidence from overseas jurisdictions indicates that child protection offender registers have very little or no impact on re-offending rates or public safety unless they are supported by an active, offender RMF (Peck, 2011, Duwe & Donnay 2008). Few jurisdictions employ a comprehensive RMF (UK; Minnesota; Washington; and Victoria, Australia) and this is the New Zealand register's major point of difference compared to the majority of registers. Cabinet noted that the development of the RMF should informed by forensic psychology expertise and criminological evidence. Accordingly, the RMF is grounded in the 'risk need responsivity model' (Bonta & Andrews, 2018).

Consequently, NZ Police devised an evidence-based risk assessment policy (Jung, 2017) with a three tier risk management system allowing police case managers to focus on the highest risk individuals. Intelligence information provided by the National Intelligence Centre is also used to inform risk management. Thus, persons on the Register are managed according to assessed risk and not according to the offence committed. Risk assessment and management practices are based on the work of Dr Karl Hanson and his research associates (Hanson, Harris, Scott, & Helmus, 2007; Hanson, Helmus & Harris, 2015), embedding static and dynamic actuarial risk measures into everyday practice. More recently Dr Hanson and his colleagues' research into desistance has been informing the ongoing development of the RMF.

The principles of the 'Good Lives Model' (Purvis, Ward & Shaw, 2013) have been incorporated into the NZ register operational policy and staff training. This is in keeping with the treatment literature on working with men who have convicted child sex offences. In this respect, those persons on the Register are referred to as registered persons, and are viewed inherently as human beings first and foremost who all seek the attainment of primary human goods. This translates into a strengths based case management practice which balances the need to manage risk, with the needs and wants of those persons on the Register.

New Zealand Police evaluation of the Child Sex Offender Register

As well as the establishment of a Register in New Zealand, Cabinet required that evaluative activities be conducted to support the first three operational years of the Register and to develop a methodology to measure reoffending outcomes (from which to assess effectiveness thereafter). The purpose of the evaluation therefore was to determine whether the register and risk management framework were operating as intended, to inform ongoing enhancements as necessary, and to assess the impact of the work on staff, as well as on reoffending outcomes.

The evaluation has been designed in close collaboration with the Child Sex Offender Registry, based at New Zealand Police Headquarters, and is being led from the New Zealand Police Evidence Based Policing Centre. The Registry team is particularly interested in examining the use of risk assessment tools, risk management practice, and interagency working and information sharing. The evaluation has been designed with an emphasis on these areas.3

The evaluation design was informed by evaluations of registers operating in other jurisdictions (for example, Powell, Day, Benson, Vess & Graffam, 2014; Wood & Kemshall, 2010), and comprises of a number of methods to address the process evaluation questions and assess outcomes. Three core components are a longitudinal survey of staff, qualitative research with Police staff, partner agency staff and with registered persons, and finally, a reoffending analysis.

To examine the effects of operational work associated with the Register, a longitudinal survey of case managers and probation officers has been designed and is currently in its third year of data collection. The purpose of the survey is to monitor the impact of the case management work on staff well-being, attitudes towards and perceptions of aspects of the role. All active register case managers and a sample of probation officers (to include the perspective of other Registry staff) are invited to complete a short questionnaire at regular intervals (3-monthly for case managers and 6 monthly for probation officers). In addition, a sample of police officers working in child protection teams are invited to complete the questionnaire to provide a benchmark from which to compare responses from the case managers.

These staff were selected as a control group as the victim profile is similar to that for child sex offender case managers. The questionnaires cover the following topics: staff well-being; job satisfaction; the effectiveness of relationships with managed offenders; perceptions of the Register and RMF; and ability to perform their jobs. Respondent demographics collected included length of service, length of time in the role, previous roles, as well as age, gender and ethnicity. Analysis to date has focused on detecting changes over time in register case managers' responses and whether there are any differences in responses between register case managers and that of probation officers or CPT staff. Analysis of case manager well-being, job satisfaction and perceptions by length of time in the role and other demographics, is currently underway.

Initial areas of interest identified through the longitudinal survey have been further explored through the qualitative component of the evaluation. This qualitative component involved semi-structured interviews with 16 case managers to obtain detailed information on use of the risk assessment tools and approach to risk management. Two further phases of qualitative work are planned for the evaluation. Interviews with Police staff and staff from other agencies will investigate the nature and efficacy of current inter-agency working and information sharing arrangements; and interviews with registered individuals themselves will explore their experiences and perceptions of the Register.

The methodology for assessing reoffending outcomes is in development. Learning from the literature suggests that most convicted child sex offenders do not sexually reoffend against children upon release. However, reoffending rates are likely to be an underestimate of the actual rate of reoffending and variables influencing this underestimation include reoffending definition and length of follow-up period (Hanson & Morton-Bourgon, 2005). A study examining the chronicity of child sexual reoffending by individuals convicted of a child sexual offence prior to the implementation of the Register will be undertaken to inform Cabinet of the optimal follow-up period required to establish whether the Register is affecting reoffending outcomes. In addition to establishing whether the Register contributes to a reduction in child sexual reoffending, the outcome evaluation will also seek to determine the components of the risk management framework that are most effective.

What we have learnt so far

There is a growing body of literature investigating effective case management practice. Review of the research to date suggests that core components are; using a proactive approach to engage with and establish respectful relationships with registered persons, use of ongoing risk assessments and risk management plans, and interagency cooperation. The Registry team has incorporated this learning into their case management policy, guidelines and training. Early findings from analysis of survey responses over the first year of operation found case managers' well-being, attitudes and job satisfaction remained relatively stable over time, indicating they were not experiencing an accumulation of unintended consequences from their work. However, they had experienced an increasing difficulty accessing information from other agencies over the course of the first year of operation, as well as increasing workload;[4] a theme also supported by analysis of the first phase of qualitative research.

Preliminary analysis of the interviews with case managers has identified some themes similar to those found in other recent studies of case manager perceptions. These themes include; belief that the work they are doing contributes to reducing risk of reoffending, mixed views in relation to utility of risk assessment tools, some frustrations with information sharing and resourcing, and finally a need for the legislation to better support effective case management practice (Masters & Kebbell, 2019; McCartan, Hoggett & O'Sullivan, 2018).

The evaluative activities have been designed to complement the registry team's own monitoring activities, and timed so that findings can inform relevant discussions at workshops, training and other staff events. Registry staff are also starting to receive anecdotal reports from case managers of specific instances where the risk of sexual reoffending against a child had been reduced as a direct result of their information gathering and intervention work. Registry and evaluation staff are currently considering how this information can be systematically captured to complement the reoffending outcomes analysis.

Conclusion

The evidence for whether or not the establishment of a register and case management approach being taken in New Zealand, has had an impact on recidivism of child sexual offending will not be available until a sufficient follow-up period has been allowed for, and the outcome evaluation studies have been conducted. However, by employing a best practice risk management approach to case management, whereby risk scores obtained from validated risk assessment tools (Hanson, Helmus & Harris, 2015) inform case management decisions, Police are ensuring the approach has the best chance of being effective in reducing sexual offending recidivism (Hanson, Harris, Scott, & Helmus, 2007). Furthermore, the accompanying programme of evaluation ensures insights from process evaluation findings can be incorporated into ongoing enhancements to policy and practice, thereby ensuring implementation integrity.

Learning from the process evaluation work to date shows there is still work to be done before the risk management framework can be considered fully embedded - as is to be expected during the early implementation stages- and this is a key focus for the registry team for the current year. Evaluation learning is also being used to inform refinements to the risk management framework, areas of training, staff communications, resourcing decisions and IT system functionality. The evidence is also informing ongoing work to establish effective partnership arrangements with other agencies, as well as making the case for legislative changes to assist case managers to carry out their roles more effectively.

The establishment of the Register and the development of supporting operational policies and practices in New Zealand is firmly grounded in evidence. New Zealand Police continues to apply learning from its evaluation and the international evidence in real time, in order to improve monitoring and management of registered individuals.

End Notes

1. An Extended Supervision Order, Parole (Extended Supervision) Amendment Act 2014, is an order placed on someone upon completion of their sentence, it can be for up to 10 years, and is for those individuals deemed to be of high risk of further sexual offending, or very high risk of further violent offending. It is applied for by the Department of Corrections and is used to monitor and manage the long-term risk posed by those placed on the order by the high court.
2. A Public Protection Order, Public Safety (Public Protection Orders) Act 2014, is a court order that allows the detention of very high risk individuals at a secure 'civil facility' within prison precincts. The Department of Corrections can apply for a PPO for individuals who have served a prison sentence for a serious sexual or violent offence and continue to pose a very high risk of imminent and serious sexual or violent offending.
3. It is important to acknowledge the significant contribution of Joanna Swanson, Judy Li and Darren Walton in the design and early implementation of the evaluation of the Child Sex Offender Register.
4. Analysis of the first two years of survey data is in progress.

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- Performing site measurements
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- Inspecting vehicle damage profiles

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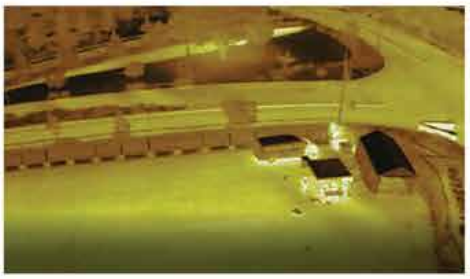

Infrared thermal imaging cameras offer an innovative method to visualise crime scenes, assist in search and rescue operations and conduct forensic investigations. Uses include:

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- Monitor hazardous or inaccesible sites.

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Police Legitimacy: Introducing the Crime Vulnerability Index as alternative to the use of SEIFA as indicative tool for resource deployment

Dr Michael Akindeju

Abstract

A new approach—Crime Vulnerability Index (CVI) — is herewith proposed as a better index to provide additional indicative guide on locations that are more vulnerable to crime. The CVI has a strong statistical correlation (0.6704) when plotted with number of recorded offences by Local Government for the areas and period evaluated. This is expected to improve resource optimisation and/or resource maximisation.

As an imperative for effectiveness, requirement for optimised resource deployment, or maximising resource allocation by way of workforce planning is one of the many challenges faced by Police Organisations. This becomes even more critical when there are competing demands with many critical elements in a complex environment. Typically, therefore, Police Organisations may rely on some definable metrics for determining whether to, where and when to deploy frontline officers.

In recent times and although not exclusively, police Organisations and researchers have relied on the use of Australian Bureau of Statistics' 'Socio-Economic Indexes for Areas' (SEIFA) as indictive, in most instances, the likelihood for potential high crime spots which has led to deployment or presence of more frontline officers in those areas ('hot areas policing').

In this body of work, we show that SEIFA is not sufficient and is not necessarily a good indicator for high number of recorded offences and hence crime vulnerability, and in fact that SEIFA is not sufficient and has a weak statistical correlation[1],[i] (0.0982) when plotted with number of recorded offences by Local Government Areas (LGAs).

Main Paper

Proponents of the use of SEIFA as indicators for hot areas policing have arguably relied on the Expected Utility Theory hypothesised as below[ii] in Figure 1.

The fundamental expectations of the Expected Utility Theory are that:

- SEIFA correlates well with number of recorded offences as presented in Figure 2, and
- SEIFA was designed to be a good predictive tool for number of recorded offences

However, a closer look at SEIFA (Figure 3) reveals that it was not designed to provide or meet either of the expected expectations.

By design and as evident in the four elements of SEIFA, its recommended common use includes[iii]:

- *determining areas that require funding and services*
- *identifying new business opportunities*
- *research into the relationship between socio-economic disadvantage and various* health and educational outcomes.

Figure 1: Criminology ex-hypothesis: the Expected Utility Theory

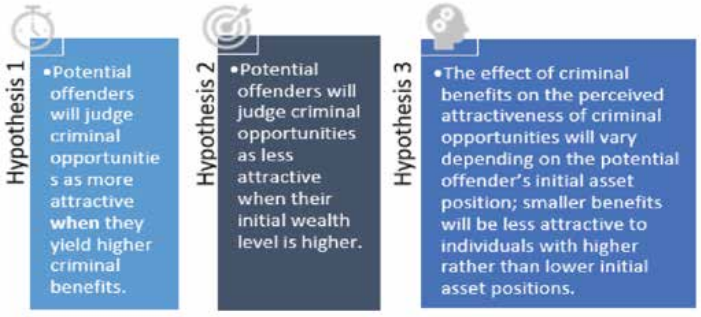


Figure 2: Fundamental implications of the Expected Utility Theory

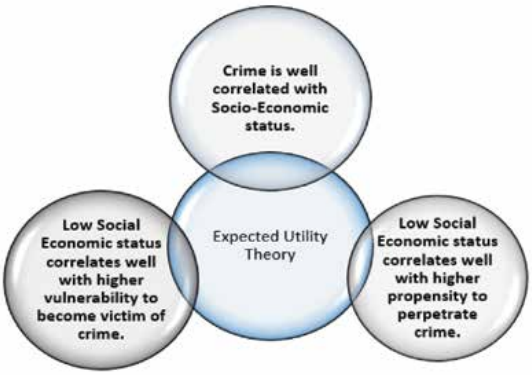
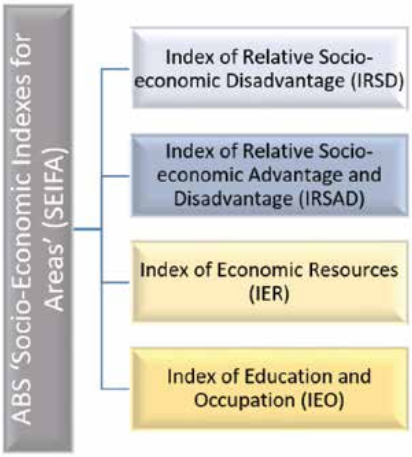


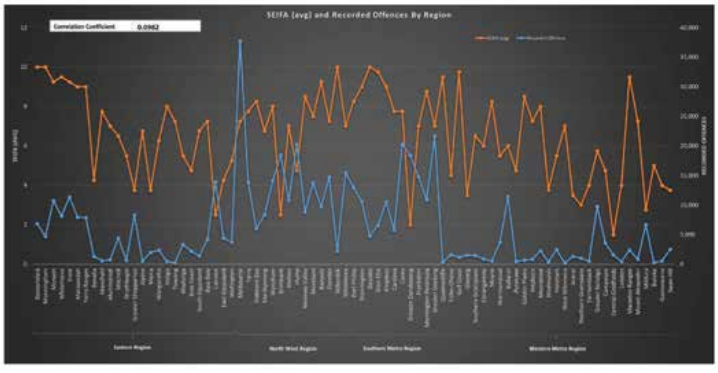
Figure 3: Elements of SEIFA[ii]



The above nonetheless, the use has been extended to be associated with allocation resources for Community policing and Resource planning, leading to the presence of frontline officers in low socio-economic areas.

An unintended consequence has been that some communities have felt the increased presence of frontline officers in their communities are not justifiable, counterproductive and have led to issues on racial profiling, and even some court cases. This reaction would seem justified on inspecting the plot shown as Figure 4 of number of recorded offences done as proof of concept using publicly available data for the Victoria, Australia for recorded offences for period covering July 30 2017 to June 2018 *(previous 5 year periods also show similar trend)* and the most recent SEIFA (2016) data that was released in March 2018.

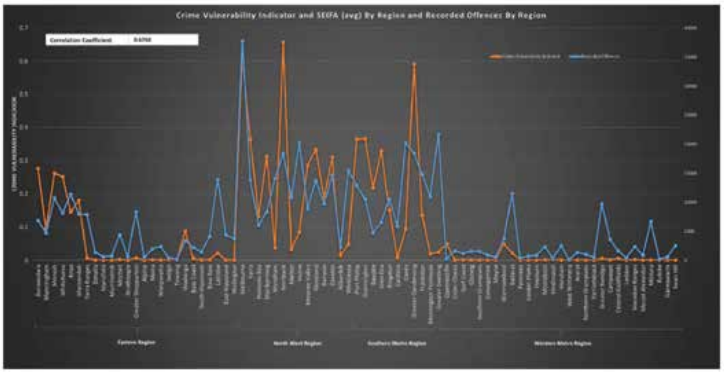
Figure 4: Plot of SEIFA (in Orange) and Number of Recorded Offences (in Blue) by LGAs and Region



The above perspectives are further buttressed by Schermuly and Forbes-Mewett[iv] (2019) in their paper entitled *"Police legitimacy: perspectives of migrants and non-migrants in Australia"*. They explored perceptions of police legitimacy and found that *"ethnic diversity and/or migrant status of community members [at that LGA] were a key factor raised in response to questions about community perceptions of the legitimacy of Victoria Police in Monash LGA"*.

Although additional work needs to be done to further validate applications of the CVI, initial investigations done as proof of concept using publicly available data for the state of Victoria, Australia show that the CVI is a more credible Index for Crime Vulnerability. As shown in Figure 5, the CVI has a better statistical correlation *(0.6704)* to number of recorded offences by Local Government for the areas and period evaluated, representing almost 7 fold stronger correlation when compared to the *(0.0982)* statistical correlation shown with the use of SEIFA.

Figure 5: Plot of CVI and Recorded Offences LGAs and Region



The CVI model

The model comprises of SEIFA and other demographic elements that captures prior period distribution and experiences, and current population density of the areas of interest. This is mathematically represented as:

$$f(Crime\ Vulnerability_{Indicator}) = \frac{1}{SEIFA_{avg}} * \frac{\#Recorded\ Offences}{\#Unique\ Offenders} * \frac{Prop.\ of\ Male\ in\ Unique\ Offenders}{Prop.\ of\ Female\ in\ Unique\ Offenders} * \frac{\#Crime\ by\ Youth}{\#Total\ Crime} * \frac{\#Youth}{Total\ pop.} * \frac{Prop.\ of\ Male\ in\ Pop.}{Prop.\ of\ Female\ in\ Pop.} * \frac{Pop.\ Density}{1000}$$

Where:

- SEIFA is Socio-Economic Indexes for Areas (ABS)
- # Youth is total number of persons of 12 to 24 years of age
- Population Density is number of people per square kilometre of land area
- #Recorded Offences and #Unique Offenders from Crime Stats.

The model can be applied for the evaluation of subsets of the community or demographic by replacing the model element on population with the subset of interest. Further, the model can be used for the evaluation of the distribution of particular type(s) of recorded offences by replacing the model elements on Offenders and number of recorded offences and crime with the particular offence(s) of interest.

Conclusions

This body of work has demonstrated that SEIFA is not necessarily a good indicator for recorded number of offences and therefore proposes the use of the Crime Vulnerability Index (CVI).

It has further been established that the CVI has a stronger statistical correlation (0.6704) with the number of recorded offences for the periods evaluated, representing a 7 fold improvement when compared to SEIFA that has weak statistical correlation (0.0982) with number of recorded offences for the periods evaluated.

This model can also be applied for evaluating crime vulnerabilities at suburb level, provided associated crime data at that level is available.

Author Biography

Michael is a senior member of Innovation and Research Team *(March 2017 to June 2019)* at the Australia New Zealand Policing Advisory Agency (ANZPAA).

He is an apt multidiscipline visionary, Chartered and Registered Professional Engineer, and a Certified Business Architect with background and cross boundary experiences—in Policing, Chemical Engineering, Process Engineering, Management, Public Sector, Banking and Finance—geared towards adding values to stakeholders. He was a senior member of the Innovation and Research team as an Innovation and Research Associate (March 2017 – June 2019) during which he contributed to the body of knowledge on Drugs Handling, Workforce, Vulnerable Groups, Diversity and Talent Management. He was the Lead Project Officer during a secondment to Victoria Police to develop Victoria Police Culturally and Linguistically Diverse Inclusion Strategy and Action Plan.

Michael is an avid innovator and has helped Government Agencies (including Police Organisations), several Manufacturing Plants, Mineral Resource Plants, Oil & Gas Process Plants, Large Corporates–across Africa, Australia, New Zealand, Canada and the Americas—to realize and surpass their corporate production targets by providing technically sound but cost-conscious process risk management, process designs, site commissioning and installations tailored to suit both their current and forecast raw material bases without compromising on environmental and social responsibilities.

Michael is a multi-award winner in both academia and Industry and has contributed immensely to knowledge with more than 17 peer reviewed academic journal and conference papers, a book, and three book chapter. He is expert reviewer for renowned academic journals and serves as a member of the Regional Advisory Council to the government on issues pertaining to Multiculturalism in Victoria, Australia.

End Notes

1. Statistical correlation coefficient is a measure (on a scale of -1 to +1, Abs 0-1) of statistical relationship between two set of data. The higher the number, the better the statistical correlation.

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i Australian Bureau of Statistics, Statistical Language - Correlation and Causation. Available from: https://www.abs.gov.au/websitedbs/a3121120.nsf/home/statistical+language+-+correlation+and+causation [7 December 2018]

ii Pickett, JT, Barnes, JC, Wilson, T, & Roche, SP, 2019, Prospect Theory and Criminal Choice: Experiments Testing Framing, Reference Dependence, and Decision Weights, Justice Quarterly, DOI: 10.1080/07418825.2018.1531142

iii Australian Bureau of Statistics, Socio-Economic Indexes for Areas (SEIFA). Available from: http://www.abs.gov.au/websitedbs/censushome.nsf/home/seifa [7 December 2018].

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On Selecting Crimes for Hot Spot Evaluations

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Abstract

Hot spot policing is a strategy whereby patrols target areas with a disproportionate amount of crime. This strategy has been shown to be effective in reducing crime in high density areas. There is disagreement, however, about the effectiveness of hot spot policing for particular crime types.

Crime types have been shown to influence the results of interventions, but there is currently no standard practice for selecting crime types for analysis. Here we survey the current literature in order to evaluate police response, crime measurement, and crime type selection.

We describe various factors in hot spot policing experiments that should be considered in relation to one another and suggest that policing departments ought to establish clear experimental aims prior to implementing a hot spot strategy. We also suggest that police response should appropriately reflect the established experimental goals, and that crime types should be chosen dependent on the type of police response chosen. Once crime types are chosen, a metric of criminal activity can be chosen based on the crimes being targeted. We conclude by describing three key considerations for hot spot policing interventions: (1) adequate collection of pre-treatment crime levels is essential for an accurate representation of an areas' level of crime and the types of crime problems in a given area; (2) selected crime types should reflect the chosen patrol's effectiveness; and (3) crime measurement metrices should correlate with its corresponding experimental aims, police response and selected crime types.

Introduction

In the late 1980s, criminologists developed an interest in the relationship between crime and place (Weisburd 2015). Research suggests that the environmental composition of an area is more predictive of crime rates than residential demographics of an area (Andresen & Malleson, 2011; Braga & Weisburd, 2010; Eck & Weisburd, 1995; Piza & O'Hara, 2012). Over time, advancement in technological techniques has allowed researchers to demonstrate existence of high crime clusters within small geographic areas, such as block faces, intersections, street segments and specific addresses (Piza & O'Hara, 2012; Weisburd, 2015; Weisburd & Amram, 2012).

A study by Sherman, Gartin, and Buerger (1989), for example, found that just 3.5 percent of the Minneapolis' addresses accounted for over 50 percent of calls for service in a one-year period. Similarly, a study by Pierce, Spaar and Briggs (1988) found that 50 percent of emergency calls for service came from only 3.6 percent of addresses in Boston, Massachusetts.

Furthermore, crime rates remain stable over time, such that high density crime areas report similar levels of crime for ten years or more (Weisburd et al. 2004). This phenomenon has since been coined 'criminology of place' (Sherman, Gartin & Buerger, 1989, p. 49). These findings acted as a catalyst for implementation of evidence based policing strategies such as hot spot policing (HSP), across the United States of America and the United Kingdom (Sherman & Weisburd, 1995; Weisburd, 2015).

HSP is a strategy whereby police patrol target small geographic areas, in an effort to reduce crime in high crime clusters known as hot spots (Sherman & Weisburd, 1995). HSP is grounded in two theoretical frameworks; routine activities theory and deterrence theory. Routine activities theory proposes that crime occurs when motivated individuals and suitable targets converge in time and space, in the absence of capable guardians (Cohen & Felson, 1979). In this case, capable guardians refer to police officers who possess an ability to prevent crime and are motivated to do so (Cox, 2015; Simpson & Hipp, 2017). Importantly, police officers' capacity to influence crime is dependent on the crime occurring in a time and place in which police officers' can adequately respond to it. As such, HSP initatives should determine whether utilised types of police patrol are suitable for a given location and whether the type of police patrol has an effect on chosen crime types (Simpson & Hipp, 2017). In order for suitability of a given location to be determined, empirical evidence must suggest a high density of crime within a given hot spot.

Deterrence theory proposes three key elements; certainty of apprehension, severity of punishment and celerity or swiftness in being caught and punished (Kleck, 2016). Similar to rational choice theory, an individual will rationally weigh up costs and benefits of committing a crime and act accordingly (Nagin, 2013; Sherman et al. 2014; Simpson & Hipp, 2017). Importantly, deterrence theory posits "the certainty of punishment has greater deterrent value than severity of punishment" (Koper, 1995, p. 649).

Both routine activities theory and deterrence theory need to be considered in relation to how a given patrol type will influence criminal activity, and the effectiveness of that given patrol type within a hot spot. Deterrence theory proposes that visual cues to police presence has a deterrent effect on public *perceptions* of police presence. Therefore, hot spots should be small enough such that presence of a patrol car or uniformed police officer can be seen by any individual in the same hot spot. Additionally, visual cues also influence an individual's perception of the likelihood of punishment, thus HSP strategies should select crime types which are influenced by visual cues of police patrols (Koper, 1995).

HSP strategies have been shown to be effective in reducing crime in high density areas (Braga, Papachristos & Hureau, 2014). Despite empirical support for the effectiveness of HSP on crime reduction, little is known about how various factors of HSP experiments such as type of police patrol and crime measurement metrics influences crime reduction. Crime levels are measured via multiple metrices, including but not limited to: publicly generated calls for service, police generated incidents and reported crime. These metrices influence experimental results and interpretations, and as such, must be considered in relation to their corresponding chosen crime types.

Furthermore, little is known about crime types that are selected for inclusion and exclusion in analyses, as a standardised method does not exist. Many of the early studies conducted in the U.S., use classifications such as 'hard' or 'soft' crimes (Koper, 1995; Sherman & Weisburd, 1995). 'Hard' crime is classified as a serious crime which is violent in nature. Conversely non-violent crimes are termed 'soft' crimes and are usually related to disorder (Sherman & Weisburd, 1995; Telep et al. 2014). A similar classification known as Part 1 and Part 2 crimes are also utilised across the literature (Telep et al. 2014). Part 1 crimes refers to serious crimes such as robbery, auto theft, burglary and aggravated assault and Part 2 refers to soft crime, such as public intoxication or public nuisance (Telep et al. 2014).

In contrast, 'street level crime' is often used as a classification. Street level crime refers to crime that patrol officers are able to deter in the public domain, such as anti-social behaviour, vehicle theft, robbery and graffiti (Arial, Weinborn & Sherman, 2016). An ongoing experiment by the Western Australia Police Force is targeting street level crime in Perth CBD.

Police officer's predictions of the most common 'street-level' crime types to occur in Perth CBD were collected. As a result of these predictions, a list of crime types was created by Senior Sergeant Simon Williams and subsequently used in analyses (WA Police, 2018).

Additionally, 'violent' crime is often a specific target of hot spot policing strategies (Braga et al.1999; Groff et al. 2015; Ratcliffe et al. 2011; Simpson & Hipp, 2017; Taylor, Koper & Woods, 2011). Experimental aims are determined by analysing the types of crime problems in a given area. If spatial analysis determines that a high density of violent crime exists in a given area, a policing department will thus target violent crime via HSP strategies. Therefore, only violent crime types are included in crime analyses. For example, HSP strategies which target violent crime often include crime types such as criminal homicide, aggravated assault and robbery.

Despite a number of these classifications being similar in nature, the principle area of difference lies in the sub classifications of crime categories. In addition, hot spot policing experiments have been conducted throughout the United States and the United Kingdom which operate through different legal systems and subsequent classifications of crime severity.

Therefore, we will survey the current literature to evaluate the types of police patrols employed in HSP initiatives, crime measurement metrices and crime type selection. We will propose that the aforementioned factors should be considered in relation to one another. Lastly, we will make recommendations as to how HSP strategies should be implemented by considering how HSP policing interventions are most effective.

Police Response

Type of Police Response

A large portion of HSP literature is dedicated to investigating the effectiveness of specific types of police patrol on crime levels. Several prominent studies investigated the effectiveness of foot patrol on crime reduction (Ariel, Weinborn & Sherman, 2016; Hutt et al. 2017; Novak et al. 2016; Piza & O'Hara, 2012; Ratcliffe et al. 2011). Conversely, multiple patrol tactics have been utilised in an effort to reduce crime, such as foot and car patrol (Cox 2015; Koper, 1995; Sherman & Weisburd, 1995) or foot, bicycle and car patrol (Williams, 2015). However, a significant gap in the literature exists regarding justification for why specific patrol types are chosen, and how specific patrol tactics influence specific types of crime (Haberman, 2017).

Patrol Dosage and Schedule

Previous HSP experiments differ largely in regard to the duration, frequency and measurement of police dosage. A ground-breaking study by Koper (1995) reanalysed the 1989 Minneapolis HSP experimental data and identified the 'Koper curve'. The Koper curve principle refers to the phenomenon in which patrol times of 14 to 16 minutes produced optimal results on crime and disorder reduction. Interestingly, Koper observed diminishing returns effects when patrol times were longer than 16 minutes.

The Koper curve finding subsequently informed future HSP experiments, with numerous studies utilising a patrol time of 12 to 15 minutes per day (Ariel et al. 2016; Hutt et al. 2017; Novak et al. 2016; Telep et al. 2014; Williams, 2015). Alternatively, some studies implemented patrol times with no restrictions, which saw police officers determine time spent at hot spots (Sherman & Weisburd, 1995). In contrast, studies which utilised a problem-oriented policing strategy in conjunction with an HSP strategy, implemented patrol times of as long as 16 hours per day (Groff et al. 2015; Ratcliffe et al. 2011; Taylor et al. 2011). In addition, the schedule and number of visits by police patrols differed across the literature, ranging from a singular and longer patrol per day (Groff et al. 2015; Ratcliffe et al. 2011; Sherman & Weisburd, 1995; Taylor et al. 2011) to multiple patrols per day (Ariel et al. 2016; Cox 2015; Hutt et al. 2017; Novak et al. 2016; Telep et al. 2014; Williams, 2015).

Multiple methods are utilised to measure patrol dosage across the literature. Police logs or reports are commonly used to measure both length and schedule of patrol dosage (Braga et al. 1999; Groff et al. 2015; Novak et al. 2016; Sherman & Weisburd, 1995). Police logs are often used in conjunction with systematic observations by trained researchers (Braga & Bond, 2008; Ratcliffe et al. 2011; Sherman & Weisburd, 1995) and field interviews with civilians (Taylor et al. 2011). Technological advancements such as GPS trackers (Ariel et al. 2016; Cox, 2015; Hutt et al. 2017; Williams, 2015) or call signs (D1HOT) (Telep et al. 2014) have been used to measure police dosage in more recent studies.

There are several advantages and disadvantages of how patrol schedules and duration are measured. A significant disadvantage of using police logs as a crime metric results in an increased likelihood of inaccuracy in relation to 'observed' crime levels. Systematic observations by trained researchers are often used to provide a more complete assessment of crime, particularly when social and physical disorder are being targeted (Braga & Bond, 2008; Ratcliffe et al. 2011; Sherman & Weisburd, 1995). However, high costs are associated with both training and utilising individuals in HSP experiments (Sherman & Weisburd, 1995). Currently, use of police patrol data from GPS trackers is the most favoured form of measuring patrol dosage and length due to its construct validity compared to traditional methods (Hutt et al. 2017).

Intervention Length

The experimental purpose of any HSP experiment influences how factors such as police dosage and schedule are chosen. Likewise, length of policing interventions varies for this reason. A large number of studies implemented HSP strategies over a time period of a year (Ariel et al. 2016; Braga & Bond, 2008; Haberman, 2017; Koper, 1995; Piza & O'Hara, 2012; Sherman & Weisburd, 1995). However, many of the studies implemented experiments under alternative timeframes.

How Crime is Measured

Effectiveness of an HSP experiment is predicated on an observed reduction in crime as a direct result of an HSP intervention. Therefore, evaluating exactly how crime data is collected and analysed is necessary, especially given that most of the literature differs on these processes. An early and influential study by Sherman and Weisburd (1995) reported a reduction in hot spot crime levels compared to control by measuring both publicly generated calls for service and systematic observations of crime and disorder. Sherman and Weisburd created a precedent of using publicly generated calls for service as outcome variables of crime reduction (Telep et al. 2014; Williams, 2015). Across the literature, publicly generated calls for service are often used as an outcome variable because a reduction in this metric suggests a corresponding reduction in public perception of crime (Ariel et al. 2016).

Often, publicly generated calls for service are measured in conjunction with other outcome measures such as researcher observations (Braga & Bond, 2008) or crime incident reports (Ariel et al. 2016; Braga et al. 1999). Additional outcome measures of crime reduction are calls for service which are both publicly and internally generated (Novak et al. 2016), crime incident reports (Groff et al. 2015; Haberman, 2017; Hutt et al. 2017; Piza & O'Hara, 2012; Taylor et al. 2011) or a combination of calls for service and crime incident reports (Simpson & Hipp, 2017). Field observations, field interviews and harm measures are also used as an outcome measure of observed crime and disorder (Cox, 2015; Groff et al. 2015; Koper, 1995; Ratcliffe et al. 2011). A summary of this information and the main findings can be found in Table 1.

Table 1: Summary of prominent literature on HSP, including type of police response, how crime was measured, primary aim and main findings.

Author	Type of Police Response	Crime Measurement	Primary Aim	Main Findings
Ariel et al (2016)	Foot patrol	Publicly generated calls for service, crime incident reports, harm measures	Evaluate the impact of police community support workers on crime levels in hot spots compared to traditional police patrol.	Crime reduction was evaluated in terms of whether a 'hard' threat of immediate physical arrest by a police officer or 'soft 'patrols by civilian police staff influenced crime levels. Crime reduction effects were evident, regardless of 'hard' or 'soft' intervention. An association between regular patrols and lower crime counts and lower harm outcomes were found.
Braga & Bond (2008)	Problem-oriented policing	Publicly generated calls for service, systematic observations	Reduce incidence of social and physical disorder crimes in Massachusetts hot spots.	Non-significant reductions were observed for all calls for service for crime and disorder. Analysis of systematic observations observed no crime displacement effect. A mediation analysis revealed that situational prevention policing strategies were the most effective at preventing crime.
Braga et al (1999)	Problem-oriented policing	Publicly generated calls for service, incident reports	Reduce the number of urban violent crime problems in New Jersey hot spots.	Reductions in crime and disorder at violent hot spots was evident. Total number of criminal incidents and publicly generated calls for service were significantly reduced in treatment hot spots.
Cox (2015)	Car and foot patrol	Crime incident reports, harm measures	Reduce crime levels in rural hot spots by implementing police patrol teams.	Despite a statistically significant increase of patrol in treatment locations compared to control, no statistically significant effects were found for crime harm reductions in treatment locations compared to control locations.
Groff et al (2015)	Foot patrol, problem-oriented and offender-focused policing,	Interviews, field observations, crime incident reports	Reduce violent crime in Philadelphia hot spots between a 12-14 week period.	Treatment areas which received offender focused strategies saw a 42% reduction in violent crime. However, hot spots which received problem-oriented policing and foot patrol did not demonstrate any significant reductions in violent crime.
Haberman (2017)	N/A	Crime incident reports	Investigate crime type and hot spot relationships using spatial analyses and retrospective data.	Crime incident data was analysed, and 11 different types of crime were selected for analyses. Results indicate minimal overlap between hot spots of different crime types.
Hutt et al (2017)	Foot patrol	Crime incident reports	Evaluate effectiveness of foot patrol in micro hot spots.	Patrols of 10-20 minutes significantly reduced crime rates in micro hot spots. Additionally, patrols of less than 10 minutes and more than 20 minutes were ineffective in reducing crime.
Koper (1995)	Car and foot patrol	Field observations	Reanalyse the Minneapolis HSP experiment data collected to determine optimal patrol length.	Longer patrol dosages improve residual deterrence of crime and disorder. Patrol stops must reach a threshold of 10 minutes to be effective and the optimal length of patrol is 14 to 15 minutes. A patrol longer than 15 minutes has a diminishing returns effect on improving residual deterrence.
Novak et al (2016)	Foot patrol	All calls for service, crime incident reports	Investigate the effectiveness of foot patrol on violent crime hot spots in Kansas City, Mexico.	Foot patrol resulted in statistically significant reductions in violent crime counts in treatment hot spots. However, the deterrent effect was short-lived and decayed almost immediately after intervention. There was no evidence for crime displacement.
Piza & O'Hara (2012)	Foot patrol	Crime incident reports	Evaluate foot patrol efficacy in high density crime hot spots over a one-year period.	Results indicate a decrease in total street violence and disaggregate categories of murder, shootings and nondomestic aggravated assault in hot spots. A spatial and temporal displacement effect for robbery was observed.
Ratcliffe et al (2011)	Foot patrol	Crime incident reports, field observations	Reduce violent crime in high crime hot spots by implementing foot patrols in Philadelphia, U.S.	No significant differences in violent crime counts during the operational period in treatment hot spots were observed. However, significant differences were observed when treatment hot spots had a high level of pre-treatment crime counts.
Sherman & Weisburd (1995)	Car and foot patrol	Publicly generated calls for service, observations	Reduce crime levels in hot spots by implementing foot and car patrols in an effort to increase public perception of police presence.	Overall, modest deterrent effects were demonstrated due to an increase in police presence in hot spots. Increases in police patrol resulted in a reduction in total crime calls of 6-13%. In addition, accounts of observed disorder were half as prevalent in intervention hot spots compared to controls.
Simpson & Hipp (2017)	Foot patrol and police stops	Calls for service, crime incident reports	Evaluate long-term, bidirectional relationships between foot patrol and police stops, and calls for service and official crime reports.	Changes in calls for service and crime counts often precede changes in policing strategy, whilst changes in crime counts also follow policing strategies. Therefore, policing strategies should be tailored to a location's previous crime incidents in order for long-term deterrent benefits to be achieved.
Taylor et al (2011)	Problem-oriented and directed-saturation patrol	Calls for service, incident reports, arrest data, field interviews	Target violent crime in Jacksonville, Florida hot spots by employing multiple policing tactics.	Problem-oriented policing was associated with a reduction of 33% in street violence for 90 days following the intervention period. Non-significant reductions were observed for directed-saturation patrol. Crime displacement to areas surrounding hot spots was also observed.
Telep et al (2014)	Car and foot patrol, traffic stops	Calls for service, incident reports	Evaluate police patrol effectiveness for hard and soft crime in hot spots.	Police patrols of 15 mins demonstrated significant overall declines in both calls for service and crime incident reports in treatment hot spots.
Williams (2015)	Foot and bicycle patrol	Publicly generated calls for service	Evaluate whether time spent at hot spots influenced subsequent crime levels.	Reductions in crime levels was associated with shorter, more frequent patrols (between 10 and 15 minute duration).

Importance of Crime Type Selection

Chosen crime metrices have significant implications when evaluating effectiveness of a HSP intervention on a particular subset of crimes (Weisburd, 2015). However, majority of HSP studies differ in both research aim and methodologies in relation to crime type selection. Due to HSP's relatively new experimental area, no standardised methods or procedures exist in terms of how crime types are selected. The following section will cover which crime types were chosen for analyses, with Table 1 outlining their corresponding research methodology, police response and crime measurement techniques.

Included Crime Types

Given that crime types are chosen for analyses in consideration of their corresponding research aim and chosen police response, included crime types across the literature have differed considerably. Crime classifications such as 'hard' and 'soft' crime types are often utilised and thus targeted, across the literature (Koper, 1995). For example, Sherman and Weisburd (1995) aimed to reduce both observed and reported crime in hot spots and as such, both soft and hard crime types were included in analyses. Importantly, Sherman and Weisburd specifically targeted crime types which were theoretically thought to be

deterred by an increased presence of police patrol in hot spots. By the same merit, an experiment conducted by Telep et al. (2014) targeted both hard and soft crime types and included crime types such as burglary, aggravated assault and vandalism.

Numerous studies specifically target violent crime types in hot spots and as such, only violent crime types are included in experimental analyses (Braga et al. 1999; Groff et al. 2015; Novak et al. 2016; Piza & O'Hara, 2012; Ratcliffe et al. 2011). These studies have included crime types such as, but not limited to criminal homicide, aggravated assault, drug offense, murder, nonfatal shootings, property crime and robbery. Additionally, both 'street-level' and 'hard' crime classifications are often utilised together (Williams, 2015).

Several studies use public perceptions of crime as an outcome measure to indicate effectiveness of HSP interventions (Ariel et al. 2016; Braga & Bond, 2008; Simpson & Hipp, 2017). For example, a study by Braga and Bond (2008) specifically targeted high crime and disorder hot spots in Massachusetts. As such, crime types associated with both physical and social disorder, and a small number of miscellaneous crimes were chosen for inclusion and measured via publicly generated calls for service.

A study by Haberman (2017) utilised a particularly novel approach to investigate the relationship between crime type and hot spots. Retrospective spatial analysis was used to investigate how crime types overlap across hot spots, specifically whether hot spots consist of predominately one crime type or multi-crime hot spots. A large number of crime types were included in analyses such as personal violence and crimes against property. Interestingly, results found minimal overlap between hot spots of different crime types and few intersections were classified as a hot spot with multiple crime types. These findings suggest that crime selection in conjunction with research aim is an important preliminary process, which should take place before a hot spot policing strategy is implemented.

Excluded Crime Types

Selected crime types are often chosen dependent on the type of crime problems being targeted and the type of patrol utilised. Similarly, crime types are excluded from analyses for similar reasons. For example, violent crimes which involve an intimate/domestic relationship between the victim and perpetrator are often excluded from crime count analyses. This is due to their likelihood to occur indoors and as such; police patrols are less likely to have a deterrent effect on its occurrence (Cox, 2015; Piza & O'Hara, 2012; Taylor et al. 2011; Telep et al. 2014). Domestic violence is only included in crime counts when incidents occurred outside a private residence and thus, are likely to be influenced by police presence (Cox, 2015). Nonetheless, domestic violence incidents may not be a suitable crime target for HSP strategies because its management may necessitate unique, individualised policing solutions (Haberman, 2017).

Minor forms of crime are excluded from crime counts when a HSP experiments' primary focus is on reduction of violent crime specifically (Taylor et al. 2011). In some cases, rape and murder are excluded from analyses due to their infrequent nature and thus, deemed unlikely to be prevented by police patrol due to majority of cases occurring in private premises (Ratcliffe et al. 2011; Simpson & Hipp, 2017). In addition, some categories of aggravated assaults such as violence against a student by a school employee, fights between students on school property or violence against a police officer are excluded from HSP analyses (Piza & O'Hara, 2012; Ratcliffe et al. 2011). In addition, crime counts collected from police stations, schools and hospitals are not included in HSP analyses due to the confounding effect it has on overall crime counts (Cox, 2015).

A technique often used to identify which crime types should be excluded is the idea that some crime incidents are 'outputs' of an experimental intervention rather than treatment outcomes (Ariel et al. 2016; Williams, 2015). A crime is classified as an 'output' of an intervention when chances of its occurrence specifically increase due to police presence and community engagement on the part of the police officer (Arial et al. 2016; Williams, 2015). For example, drug possession arrests such as stop-and-search, are often excluded because its' occurrence is a direct result of a policing intervention and thus, is a treatment 'output' (Cox, 2015; Williams, 2015). In some cases, all crime counts from police generated arrest data and police generated calls for service are not included in crime counts because they are not deemed a true representation of treatment effects (Williams, 2015).

Overall, much of the literature has differed significantly on how crime types are selected for analyses. However, two key themes emerged. Firstly, crime type selection is largely dependent on experimental aims. For example, a popular research aim was to evaluate the effectiveness of HSP strategies in high violent areas (Braga et al. 1999; Novak et al. 2016; Piza & O'Hara, 2012; Ratcliffe et al. 2011; Taylor et al. 2011). Therefore, only violent crime types were included in subsequent analyses. Secondly, crime types selection is predicated on deterrence theory and the likelihood of police influence on the occurrence of a particular crime type. For example, crime types such as domestic violence were excluded from analyses because their occurrence was unlikely to be prevented by an increased police patrol (Cox, 2015; Piza & O'Hara, 2012; Taylor et al. 2011; Telep et al. 2014).

Lastly, proposed effectiveness of HSP strategies has varied across the, literature. However, mixed results in the literature may be due to the absence of a standardised methodology or procedure (Haberman, 2017). Therefore, HSP's effectiveness on particular crime types remains unclear.

Discussion

Overall Quality

Overall, our evaluation of the literature suggests that HSP interventions significantly reduce crime levels at hot spots. Most importantly, we found that experimental aims largely influence the type of patrol utilised, which further influences how crime types are selected for analyses. However, the literature differs widely in implementation and following interpretation of HSP interventions.

A significant trend observed across the literature was the large discrepancy between which patrol types were employed. A large portion of HSP experiments implemented foot patrols, with mixed results on crime reduction (Ariel et al. 2016; Hutt et al. 2017; Novak et al. 2016; Piza & O'Hara, 2012; Ratcliffe et al. 2011).

Some studies implemented multiple policing strategies such as problem-oriented policing intervention, directed-saturation patrol and offender focused policing (Braga & Bond, 2008; Braga et al. 1999; Groff et al. 2015; Taylor et al. 2011). Additionally, patrol schedule and number of visits by police patrol differed greatly across the literature, from a longer and singular patrol per day (Groff et al. 2015; Ratcliffe et al. 2011; Sherman & Weisburd, 1995; Taylor et al. 2011) to multiple patrols per day (Ariel et al. 2016; Cox, 2015; Hutt et al. 2017; Novak et al. 2016; Telep et al. 2014; Williams, 2015).

Evidently, measurement of patrol dosage and schedule also varied widely across the literature. Inadequate measurement of patrol dosage and schedule results in a discrepancy between planned and actual police patrol, which has serious implications on outcomes of HSP experiments (Hutt et al. 2017; Sherman & Weisburd, 1995). Discrepancies arise when inaccurate measurement techniques are used, such as police logs. These discrepancies often result in an underpowered study, which reduces the likelihood of finding a significant result. In addition, underpowered experiments increase the chance of a type II error.

Experimental design in HSP literature also differs somewhat, however, majority of studies utilise a randomised controlled trial experimental design (RCT). Length of intervention periods of HSP strategies at hot spots differed across the literature. However, numerous studies implemented policing strategies over a one-year period with some success (Ariel et al. 2016; Braga & Bond, 2008; Haberman, 2017; Koper, 1995; Piza & O'Hara, 2012; Sherman & Weisburd, 1995).

A major conclusion which can be drawn from the literature is the idea that 'effectiveness' of HSP strategies on crime reduction is largely dependent on how crime is measured. Publicly generated calls for service are often used as an outcome variable because HSP strategies have the greatest impact on their occurrence and therefore, reduction (Sherman & Weisburd, 1995; Telep et al. 2014; Williams, 2015). Other utilised metrices included all calls for service and crime incident reports (Cox, 2015; Ariel et al. 2016; Braga & Bond, 2008; Braga et al. 1999; Groff et al. 2015; Haberman, 2017; Hutt et al. 2017; Novak et al. 2016; Piza & O'Hara, 2012; Simpson & Hipp, 2017; Taylor et al, 2011).

Lastly, why specific crime types were chosen for analyses presented a significant discrepancy in the literature. The process of measuring crime is largely dependent on crime types selected for analyses. For example, if a study is targeting social and physical disorder in hot spots, researchers would most likely use publically generated calls for service to measure these constructs (Braga & Bond, 2008). Thus far, no collaborative or comprehensive approach has been offered in relation to how crime types are selected, and why particular crime types are included or excluded from analyses. This lack of a standardised method for this process results in police departments and researchers selecting crime types which align with their given research aims.

Despite some differences across the literature, some similarities presented themselves in relation to how crime types are selected for analyses. These similarities are largely dependent on the experimental aim of a study. For example, if a study is targeting violent crime in hot spots, only violent crime types will be included in the analyses (Braga et al. 1999). Crime types should also be considered in terms of whether their occurrence is a consequence of the policing strategy, and thus, an 'output' or whether their occurrence is a true treatment outcome (Cox, 2015; Williams, 2015).

A significant strength of the HSP literature is the use of RCTs. RCTs are considered the gold standard in experimental designs because they allow police agencies and researchers to evaluate systematic differences in treatment groups compared to control group differences (Sherman, 2013). In addition, random allocation of groups allows researchers to adequately evaluate the effectiveness of an intervention (Sherman, 2013). In the context of HSP, the use of randomised controlled trials is especially important as it allows researchers to demonstrate the effectiveness of HSP strategies on crime levels. Many studies utilised this experimental design in an effort to demonstrate systematic changes in crime levels due to HSP interventions (Ariel et al. 2016; Braga & Bond, 2008; Braga et al. 1999; Cox, 2015; Groff et al. 2015; Ratcliffe et al. 2011; Sherman & Weisburd, 1995; Taylor et al. 2011; Telep et al. 2014; Williams, 2015).

Overall, the literature differs significantly across many facets. However, the experimental rationale was largely similar across studies. All HSP experiments are grounded in environmental criminology theories such as routine activities theory and deterrence theory. These theoretical frameworks provide a basis for HSP experiments, which results in similar research rationales across the literature. Contingent on routine activities and deterrence theory, all HSP experiments aim to reduce crime with the use of targeted police patrol at high crime hot spots. However, significant differences in utilised methods and their subsequent limitations exist. These limitations will be further discussed in the proceeding section.

Limitations

In regard to police visibility, two similar, but distinct limitations exist. Firstly, there is a lack of knowledge surrounding the effectiveness of particular patrol types on particular crime types. For example, the use of foot patrol has been cautioned due to its' inability to deter all crime types, specifically crime types which occur inside a private premise such as domestic violence related crimes (Ariel et al. 2016; Cox, 2015; Taylor et al. 2011; Telep et al. 2014). Accordingly, these crime types should not be included in HSP experiments which utilise foot patrol. In addition, foot patrol has a decreased ability to adequately respond to these types of crimes due to speed limitations (Ratcliffe et al. 2011).

Secondly, the use of particular types of patrol are largely ineffective in large hot spot areas. For example, the use of foot patrol in large hot spots is ineffective due to Police Officers' decreased visibility, and thus, does not increase the public perception of police presence (Cox, 2015; Groff et al. 2015). When foot patrols are utilised in large hot spot areas, deterrence theory is not being taken into account and thus, policing intervention has no effect on the public perception's regarding certainty of apprehension.

A third limitation is differing methods in collecting crime level data across studies. Crime statistics can be gathered via publicly generated calls for service, all calls for service, crime incident reports, researcher observations of crime and disorder, field interviews with officers and crime harm indices. How crime data is gathered has significant implications for how crime reduction is interpreted. Use of all calls for service can often inflate crime statistics because multiple calls can be recorded for a singular crime incident (Haberman, 2017). In contrast, use of crime incident reports can result in lower crime statistics due to low clearance rates in most police departments (Haberman, 2017). Subsequently, the use of crime incident reports as a measurement of crime levels increases the chance of a type II error.

A fourth limitation is a lack of HSP research being conducted in Australia. Majority of the prominent HSP experiments have been conducted in the United States of America and the United Kingdom. Although these places are relatively similar to Australia in terms of demographics, they largely differ in population density. HSP is predicated on the idea of high density clusters of crime in small areas, and it is unknown whether similar HSP experiments would be as effective in Australia (Weisburd & Telep, 2014). Therefore, the results from these experiments may not be applicable to Australia.

Lastly, little is known about the relationship between crime types and HSP. Therefore, the fifth limitation is a lack of evidence for multi-crime hot spots (Haberman, 2017; National Institute of Justice, 2012). Much of the HSP literature is grounded in the assumption that crime clusters consist multiple crime types within a given hot spot. However, Haberman (2017) found that at least 60% of hot spot intersections in Philadelphia, U.S., were singular crime hot spots. Similarly, not all crime types occur in an equal distribution across space and time. This has significant implications for how HSP experiments have been implemented thus far. For example, aggregate levels of crime might be used as an indication of crime levels in a group of hot spots. This method doesn't take into account the distribution of crime types within the hot spots and as such, one particular type of patrol may not be effective in all hot spots. For example, a hot spot which has a high level of assault may benefit from foot patrol, whereas a hot spot which has a high level of domestic violence incidents may not benefit from foot patrol due to its' unlikelihood to deter its occurrence (Ratcliffe et al. 2011).

Recommendations

Having surveyed pertinent findings from HSP's current literature, we suggest several recommendations for future HSP experiments. Firstly, we suggest that adequate collection of pre-treatment crime levels is essential for an accurate representation of an areas' level of crime and the types of crime problems in a given area. Sherman et al (2014) suggests that crime data must be collected for at least one year prior to a HSP intervention. Data collected from a time period less than a year does not truly represent an areas' crime problems. Therefore, using data from a time period less than a year falsely informs researchers and policing departments of the types of crime problems in a given area.

Further, chosen patrol types should be considered when selecting crime types to optimise effectiveness of HSP interventions. As previously mentioned, use of specific patrol types are more effective for particular crime types. Therefore, researchers and policing departments need to consider how their chosen type of patrol influences crime in its given hot spot.

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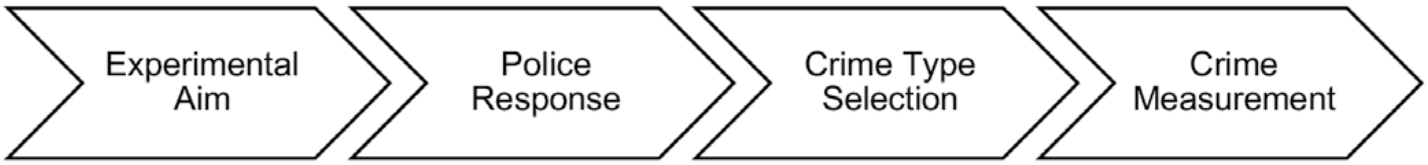
Figure 1. Relationships between facets of HSP experiments



For example, several studies utilised visible foot patrol in violent hot spots in an effort to reduce crime. Foot patrol is often utilised due to its' predicted ability to deter violent crime types. Similarly, some studies utilised multiple types of police patrol such as foot patrol in conjunction with problem-oriented policing strategies, car patrol and bike patrol.

Thirdly, we propose that how crime is measured needs to be considered in conjunction with an experiment's research aim, chosen patrol types and chosen crime types. Many studies used publicly generated calls for service as a metric for criminal activity because Police Departments were targeting street level crime, and subsequent public perception of crime (Ariel et al. 2016; Braga & Bond, 2008; Braga et al. 1999; Telep et al. 2014; Williams, 2015). For example, a citizen is more likely to observe an assault or theft of a motor vehicle due to their occurrence in public spaces. Therefore, publicly generated calls for service represent public perception of crime, and a subsequent decrease in this measurement would indicate a decreased public perception of crime. In addition, internally generated calls for service or crime incident reports should be treated as treatment 'outputs' rather than treatment outcomes (Williams, 2015, p. 36).

In summation, in order for a HSP strategy to be effective, factors such as experimental aims, police response, crime measurement and selected crimes types, should be considered in relation to one another. Policing departments and research teams must establish research goals and targets prior to deciding on police response, as these research goals should determine the type of response suitable to an experiments' aims. Once research goals and police response are established, these factors should inform the types of crime included and excluded from analyses. Additionally, chosen crime types should be reflected by the way in which crime data is measured. In addition, these factors should be considered in conjunction with routine activities theory and deterrence theory.

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Research Brief 1:
Hot Spots Policing in Birmingham, UK and Perth, WA

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Covering research conducted with Dr Geoffrey Barnes, Dr Timothy Coupe, Paul House MSt (Cantab), Jesse Parmar, Christine McComb, Senior Sergeant Glenn Spencer (WA Police) and Sergeant Chris Sprague (Formerly West Midlands Police, now WA Police).

This is the first in a series of research briefs that aim to use plain language to describe the results of new, or existing practices that have been tested in the field. In other words, a strategy or tactic implemented by the police which has been subject to rigorous evaluation. This first research brief covers the main outcomes from three pieces of research in the area of hot spot policing. I have been lucky enough to lead these projects, translating the wider evidence and negotiating with frontline officers to implement a test of patrol presence; comparing business as usual policing outcomes to the outcomes observed we adopt this strategy. The work summarised in this article was delivered by a team of dedicated police officers and staff from West Midlands Police and Western Australia Police supported in no small part by academic colleagues who were critical to each piece of study.

What is a hot spot? Quite simply, a hot spot is a small, geographical area where crime concentrates disproportionately to the rest of the surrounding area. A hot spot can be defined in lots of different ways but most commonly are described as street segments and road junctions, or defined by grids. Hot spots can be identified by using total recorded crime or more commonly, by using specific street level crime[1] (SLC) types, which can be deterred through visible patrol presence. Key to the definition of a hot spot is its size. A hot spot should be defined as an area small enough so that when one patrol car or uniformed officer is present, people may see visible police presence from any point in that hot spot.

Hot spots of crime harm (or Harm Spots) can also be identified by converting the number of crimes across an area and multiplying these by the number of day's imprisonment each crime would attract, either by sentence start points, where they exist, or the median average number of day's imprisonment observed through previous sentences handed down. Police then select hot spots based on their volume of crimes, or harm, and target these with time bound, visible patrols.

There is a huge body of evidence relating to hot spots policing and without doubt it's one of the most tested police practices of recent times. Although this is the case, and the evidence is strong in favour of adopting this strategy, hot spots policing is not business as usual (BAU) for many police forces. Even police forces which have tested hot spots policing have not always adopted this as BAU and continue to target resources based on short term crime trends rather than areas where crime has concentrated for 12 months or more.

The Birmingham Case Study: Frequency vs. Length of Patrol

In January 2015 I was posted as a Neighbourhood Police Sergeant to Handsworth Wood Ward, Birmingham. When I arrived, my ward team were not dedicating patrol time to defined hot spots of crime and antisocial behaviour (ASB), and it was a similar story for the rest of the Local Policing Unit (LPU). This gave me the perfect platform to implement hot spot patrols and test two different types of delivering patrol time based on current and emerging evidence. My main research question asked, 'What matters most in hot spots policing; time spent or frequency of patrol?' This is an important question in a time when resources are increasingly stretched, meaning we want to see the maximum return on investment in patrol.

I chose to answer this research question by designing a randomised control trial (RCT) to rigorously test two types of patrol interventions, targeted at hot spots of Street Crime and ASB. RCT's are seen as the golden standard in social science and are increasingly being used in policing to develop evidence of 'what works', which is essential as we develop as a service and further professionalise our practice. As a sergeant it was important to understand the current evidence and the gaps in the available literature relating to hot spots, in order to gain consensus from the Deputy Chief Constable to front line cops responsible for delivering patrol. One of my aims for this research was to help refine the way we go about reducing demand through visible patrol in the West Midlands.

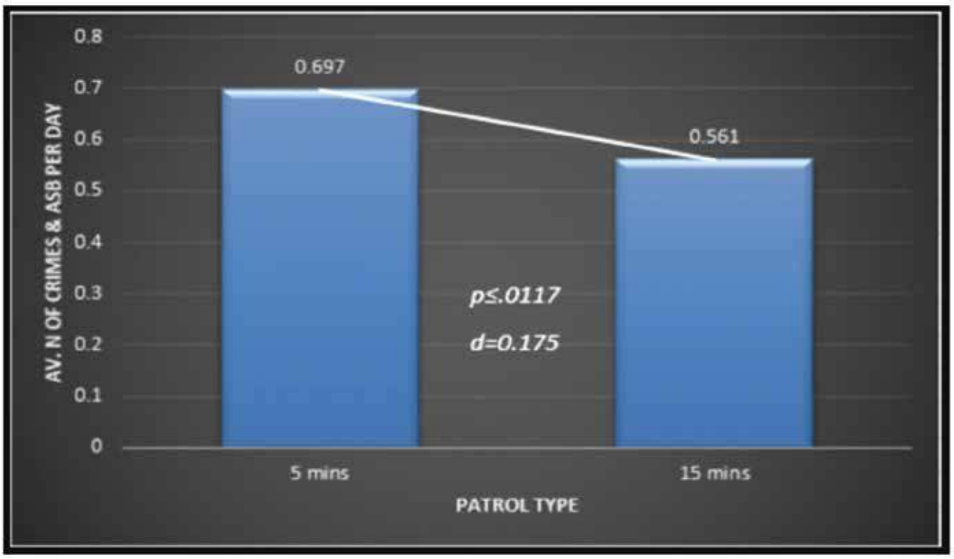
The experiment was conducted across 7 hot spots over 100 days beginning in June 2015; 50 days were randomly assigned to three 15 minute patrols and 50 days were randomly assigned to nine 5 minute patrols. Each hot spot was to receive 45 minutes of uniformed patrol time per day delivered by the duty neighbourhood team covering Perry Barr Constituency. Effectively each hot spot acted as both treatment and control to identify the difference in the differences between longer, less frequent patrols and shorter, more frequent patrols. In addition there were 7 control hot spots identified, based on overall street crime and ASB demand that were used to compare the effect of rigorous implementation of patrols against BAU which was inconsistent in delivery.

Each hot spot was 'geo-fenced' in order to track officers patrol time. Being able to measure the exact amount of patrol time was critical to implementing this research although one of the biggest challenges, as the West Midlands Police IT infrastructure was not set up to provide patrol information at the time. Officers responsible for patrolling hot spots were debriefed during every cycle of shifts where the quantity of patrol, average time spent on patrol and overall time on patrol in hot spots was all fed back. In my experience this investment in taking time to debrief and update officers on how their outputs are affecting the issue being targeted has been lacking; sometimes we are too quick to move onto the next issue or priority without any reflection at all.

The outcomes from this experiment were really interesting and are headlined below; it's worth noting that this research also involved activity analysis of every single patrol conducted. This can be accessed here **https://bit.ly/2YTAzUu**. The formal write up of this experiment can be accessed using this link **https://link.springer.com/article/10.1007/s41887-017-0003-1.**

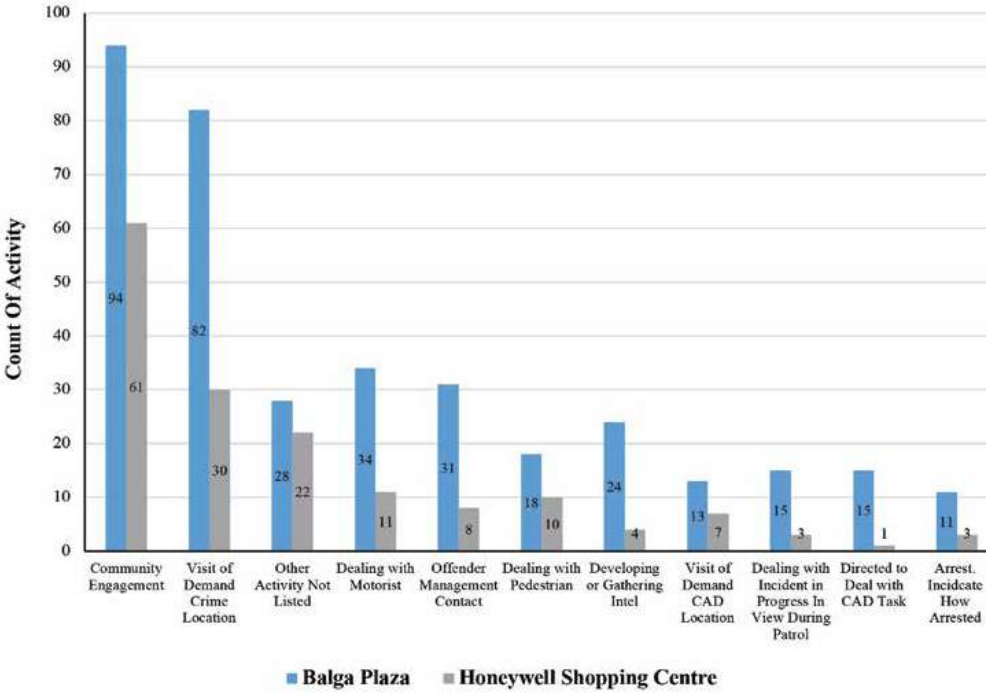
- Officers on shorter 5 minute patrol days averaged 5 minutes (geo-fenced) patrol whereas officers on 15 minute patrol days averaged 10 minutes geo-fenced patrol time.

Figure 1: Average crime and ASB; 5 mins vs. 15 mins patrol days



- There was an overall reduction in Street Crime & ASB of 46% in treatment hot spots compared to the same time period in the previous year;
- We observed 20% greater reductions in Street Crime and ASB on days randomly allocated to longer less frequent patrols (3 x 15 minute patrols). Figure 1 shows the average differences in daily crime. The analysis tells us this result is statistically significant, in other words the observed differences between short and long periods of hot spot patrolling are not a result of chance, differences were caused by differing patrol lengths and frequency of visits to hot spots.
- Tracking officers patrol time, adding accountability and feeding back patrol data resulted in 16% greater reductions in demand compared with control hot spots where there was no feedback loop present;
- Crime Harm associated with violent crime was reduced by visible hot spot patrols when compared to the 100 days prior to patrols beginning;
- Street Crime and ASB can be reduced through visible patrol and does not require the use of intrusive police powers such as stop and search or arrest. High frequency patrol outputs were associated with visibility, community engagement and visits to micro locations of crime and asb within hot spots;

Figure 2: Officer Activity Analysis



The Mirrabooka Case Study: Promising outcomes but better evidence required.

On transferring to WA Police, I was contacted by a local Police Sergeant, Chris Sprague. Chris had also previously served with The West Midlands Police and was aware of the research conducted in Birmingham. I found that Chris was suffering similar issues of criminal activity in the Mirrabooka sub-district and, sure enough, we found a concentration of 'street-level' criminal activity across four small scale shopping centres.

These shopping centres had around 12-16 shops and a patrol station located nearby, surrounded by a car parking area. There were over 100 similar locations across the North-West metropolitan area. I supported Chris and his officers at Mirrabooka Police Station to instigate a proactive policing strategy involving a series of targeted, time-bound, 'hot spot' patrols. Specifically, officers aimed to conduct three, 10-15 minute patrols per day in the two shopping centres with the aim of answering the following:

1. What activities do police conduct when they are on a hotspot patrol?
2. What is the effect of hot spot patrols on community trust and satisfaction?
3. Will hot spot patrols have an effect on street level crime and calls for service (IMS Offences and CAD call-outs)?

The strategy was tested over a period of 110 days using before-after comparisons at these shopping centre locations, two of the four centres were to be used as control locations who received BAU patrol whilst the other two would receive targeted patrols. The local leadership team had already made the decision which two centres would be targeted and which two would receive BAU policing. Whilst there is nothing wrong with us selecting hot spots to target, if we really want to answer key questions around the effect of targeted patrol time we need to be guided by the data and seriously consider what methodology we adopt. When we looked more closely at the data driving treatment and control locations we found that although they were both hot spots in their own right, they were too dissimilar to draw meaningful comparisons.

Why didn't we run this evaluation as a randomised control trial or quasi experiment? Quite simply because, at this time, there was no local support for this methodology.

There was a problem to be targeted and hot spots policing was the strategy adopted. However, as you'll read later on, this was an important first step in hot spots policing in Western Australia. Had we not supported this test of targeted patrol we would not have been able to gain the necessary support for the full blown experiment we conducted in 2017-2018 in Armadale.

Tracking of officers is always the biggest challenge in any hot spots evaluation. In this case we were not able to use AVL (Automatic Vehicle Location) data and personal issue radios did not have GPS installed, so GPS trackers were issued to all officers involved. These trackers were old technology (3G) and, although they initially provided some useful location data, the devices failed a few weeks into the evaluation. Officers were tracked throughout the evaluation using written activity analysis sheets which also recorded the times and dates of their patrol. On average we found that officers conducted 1.5 patrols per day for approximately 23 minutes. Caution must be used in interpreting patrol time and frequency, without independent GPS data we cannot accurately state exact patrol times.

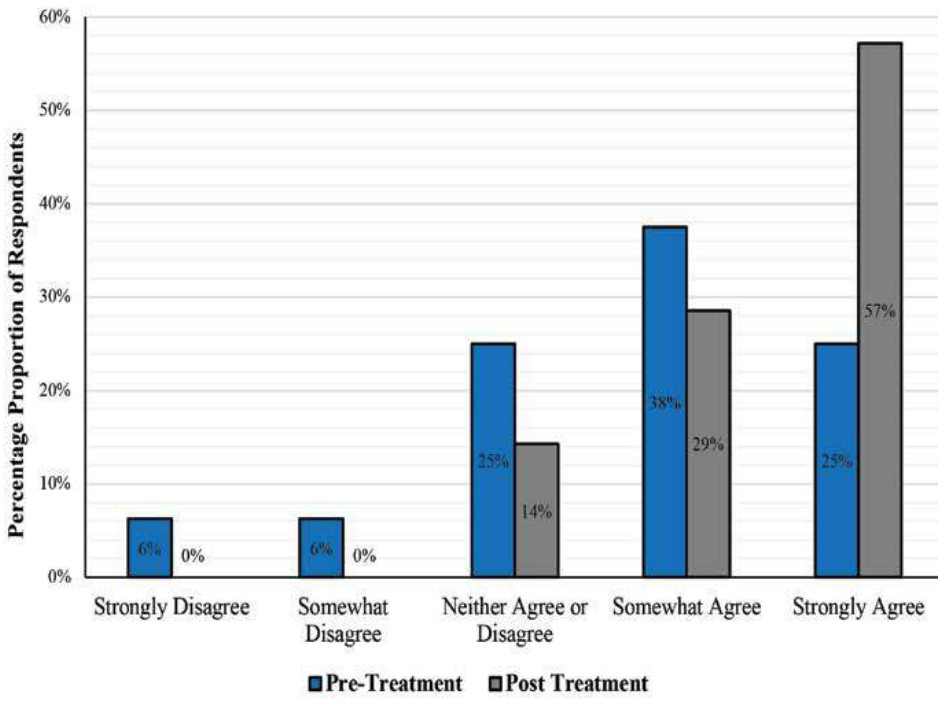
What outcomes did we observe? Figure 2 demonstrates that officers spent the majority of their patrols engaging with the community and visiting demand crime locations rather than exercising intrusive police powers such as arrest, stop search or issuance of infringements. This data contrasts activity from one of the treatment locations, which received targeted patrol and one of the control locations, which received BAU patrol.

Figure 3 demonstrates the effect of hot spot patrols on community relations. Before vs. after surveys conducted with shop owners in the two treatment locations found marked increases in trust and confidence of Police. Surveys also found a noted increase in overall satisfaction with the visibility of police patrols.

The sample size (number of participants) of the survey was quite small, which is a limitation to the strength of this evidence, however, in this small part of the community shop workers clearly shifted their perception of police following targeted patrol activity.

Figure 3: Trust & Confidence in Police Finally, with reference to street-level crime only, in both Balga Plaza and Mirrabooka Village shopping centres, there was a substantial decline in Computer Aided Dispatches (CAD) and a comparably, minor increase in recorded crime (IMS) offences. In Balga Plaza, when compared to immediate months preceding the experiment, average CAD Tasks per month fell by 51%. In Mirrabooka Village, when compared to that same period the previous year, average CAD tasks per month fell by 61% (See Figure 3). Regarding IMS offences, preliminary analysis suggests that a recorded increase in IMS offences is almost entirely due to an increase in reported stealing offences. Our hypothesis, or prediction, is that the improved police-community relations and contact time with businesses made reporting of crimes more likely.

Figure 3: Trust & Confidence in Police



The outcomes observed during this evaluation were generally positive and would indicate that targeted patrols had a preventative effect on criminal activity. However, because it was not possible to effectively match control locations or adopt a methodology whereby we could randomly allocate patrol duration or frequency at treatment locations, we can't draw any firm conclusions from this work. If we were to describe the strength of this evidence from a policy decision making perspective, it would be classified as 'interesting' and ought to be further investigated with better designed studies (See this blog from Jerry Ratcliffe for more info on this topic (**http://www.jratcliffe.net/blog/not-all-evidence-is-created-equally-an-update/**).

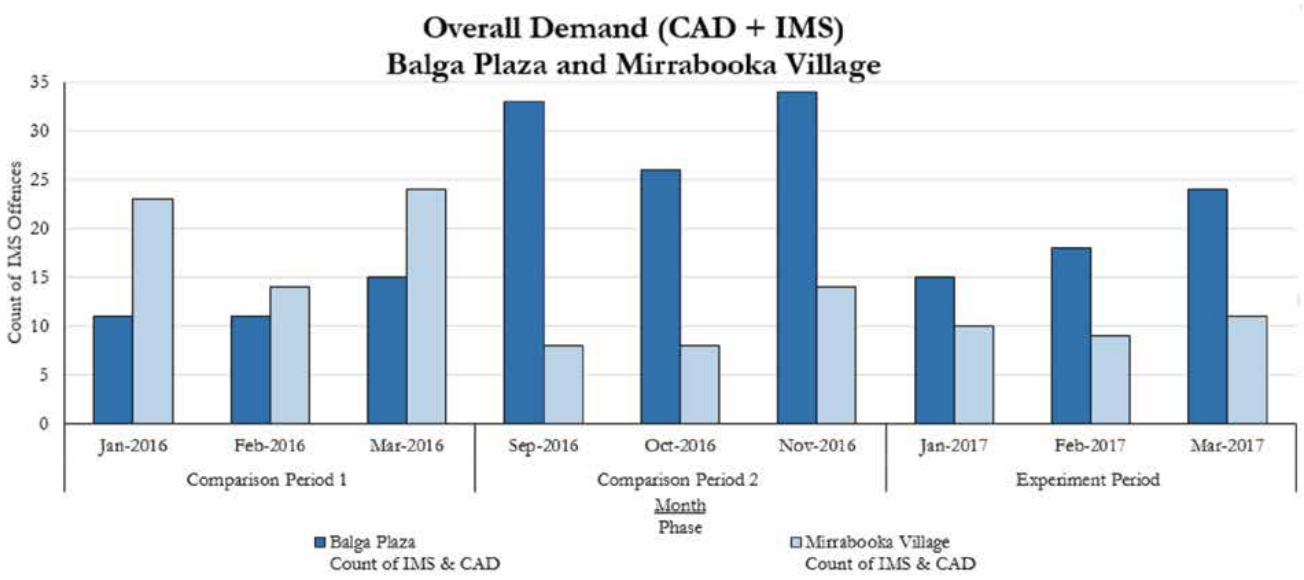
The Armadale Case Study: A test of initial and residual deterrence

After our experience of supporting officers in Mirrabooka, my team and I began talking to a number of other police districts who wanted to adopt a hot spots policing strategy to prevent crime in their areas. In August 2017 we began talking to officers from Armadale Police, who were introducing a new bike patrol team and wanted our help in answering the question, "how effective are bike patrols in comparison to colleagues patrolling in cars?" Armadale is a busy city in the metropolitan area of Western Australia, about an hour south of Perth CBD, with a population of around 80,000 and is one of the highest demand policing areas in the state.

One of the advantages of being involved in the conversation at such an early stage meant that we were able to conduct a concentration of crime analysis prior to any decisions being made on which locations would be targeted. Our analysis of street level, volume crime identified at least 41 long term hot spots across the sub-district. Hot spots here were identified by placing a 200x200m grid over the police district, identifying concentrations by volume of crimes across the previous 24 month period. Working with the local leadership team we selected 15 hot spots for targeting that included train stations, excluded the police station area and were not adjoined to another neighbouring hot spot.

At the time there were six Local Policing Teams (LPT's) covering the area, one of which was a dedicated bike team. Each team of eight constables was led by a Sergeant who reported to a Senior Sergeant, the

Figure 4: Crime Outcomes across Mirrabooka Shops Receiving Hot Spot Patrol



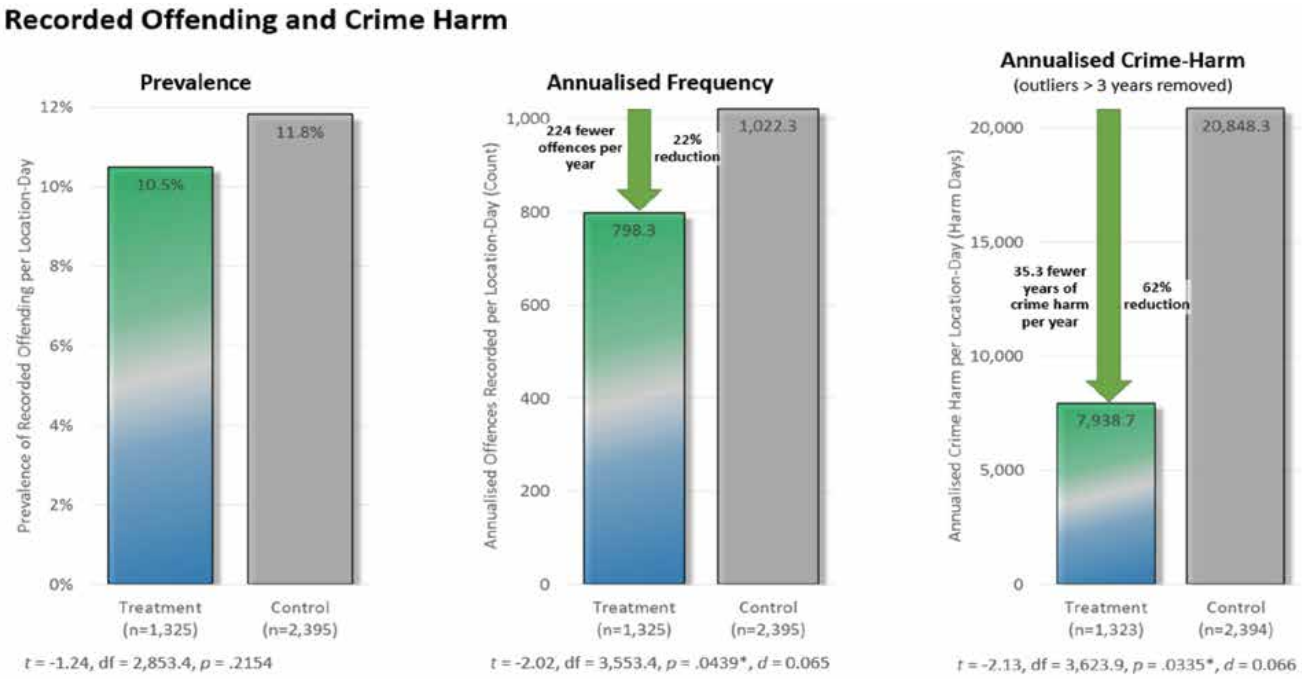
Officer in Charge (OIC) of Armadale Police Station. The senior leadership in Armadale agreed to our proposal that we test targeted patrols of bikes and cars using a randomised control trial. This involved random allocation of patrols to a maximum of 7 hot spots per day, leaving the remaining 8 hot spots as control locations for that day. Hot spots were randomly re-shuffled each day and assigned to car teams and the single bike team when they were on duty. This methodology meant that each hot spot acted as its own control, with the same number of targeted and business as usual patrol days allocated to each hot spot across the course of the experiment. This methodology also meant we were able to look at the differences in crime and demand outcomes when hot spots were allocated for sequential days of patrol compared to sequential days of business as usual policing, i.e. no additional visible patrol activity.

Given the lessons learned during the Mirrabooka evaluation, personal issue smart phones were issued to all 48 police officers at Armadale. These phones were programmed with a GPS tracking application which recorded officer location every 2 seconds. This provided over 5.5 million location 'pings' for analysis across the 248 days that targeted patrols were conducted in Armadale. A consequence of tracking police officers in such detail meant that we were able to report on time spent inside the police station and on the frequency and duration of patrols in hot spots. We found that there was no significant difference between time and duration of patrols conducted, regardless of the mode of transport so bike and car patrol were combined into one 'treatment' of visible police patrol time.

On average, across the course of this experiment officers visited hot spots once each day for approximately 14 minutes. On BAU days, officers conducted an average of one third of a patrol in the same hot spots for less than 3 minutes per day. This enables us to say with confidence that the single difference between days was the time and frequency officers patrolled in hot spots.

The full outcomes from this experiment are currently being written up for publication, however, the headline outcomes add significant knowledge to the existing evidence that hot spots policing as a strategy can prevent crime for very little patrol effort.

Figure 5: Prevalence, Frequency and Crime Harm Outcomes



As shown in figure 5, the prevalence (how widespread crime was), frequency (volume) and crime harm (severity as measured by sentencing days) are all lower on days when one 14 minute patrol is conducted, compared with days when business as usual policing takes place. For those reading this who are not statisticians, the asterisk (*) following the frequency and crime harm analysis means that the differences between treatment and control (targeted patrol and business as usual) days are statistically significant. This means that the differences observed are not chance outcomes, in this case we can state confidently that targeted patrol prevented crime and more serious offending from taking place.

The headline findings emerging from this research are bullet pointed below:

- Offending Prevalence, Frequency and Crime Harm all reduced on treatment days vs. control days.
- Targeted 14 minute patrols conducted at micro hot spots of crime prevented 22% more crimes than business as usual patrols.
- The same patrols prevented 62% more crime harm than BAU patrols.
- When officers do not conduct a targeted patrol at a hot spot for more than 4 days, demand, crime and the severity of offending all increase significantly.
- The severity of offending significantly increases, by a factor of 4, if hot spots are left un-patrolled for 5 or more days. Figure 6 below shows the stark increase in volume and severity of offending when hot spots are left to business as usual policing for more than four consecutive days.
- Patrols had no overall effect on CAD tasking on treatment days vs. control days.
- However, on sequential control days, attended CAD demand was significantly suppressed in the first 4 days compared with 5 or more days of business as usual patrol levels.

This experiment was delivered with the frontline, for the frontline in order to test the effectiveness of operational patrol deployment to long term hot spots of demand. The lessons we learned from the Mirrabooka case study were put into action. Our tracking of officers was much improved and involved an automated feedback loop which saw officers receive data driven insights on their patrol activity from the previous shift, day, week and life of the experiment. Our methodology allowed us to analyse and evaluate the differences between adopting targeted patrols and BAU, this gives us accurate counterfactual evidence on which to base a decision for future resourcing. I think this also shows the value of partnering with, or embedding, a criminologist into any police led testing of new or current practice. Our embedded criminologist, Dr Geoffrey Barnes was key in helping us design this experiment in ways that could draw out the differences, or something he likes to call the 'sliding doors' effect; i.e. understanding what happens when we choose one course of action compared with another.

I hope you've enjoyed reading this brief summary of applied research, for further information on hot spots policing I recommend the following open access resources as a starting point:

https://campbellcollaboration.org/library/effects-of-hot-spots-policing-on-crime.html

https://whatworks.college.police.uk/toolkit/Pages/Intervention.aspx?InterventionID=46

http://library.college.police.uk/docs/what-works/What-works-briefing-hotspot-policing-2013.pdf

https://link.springer.com/article/10.1007/s41887-017-0018-7

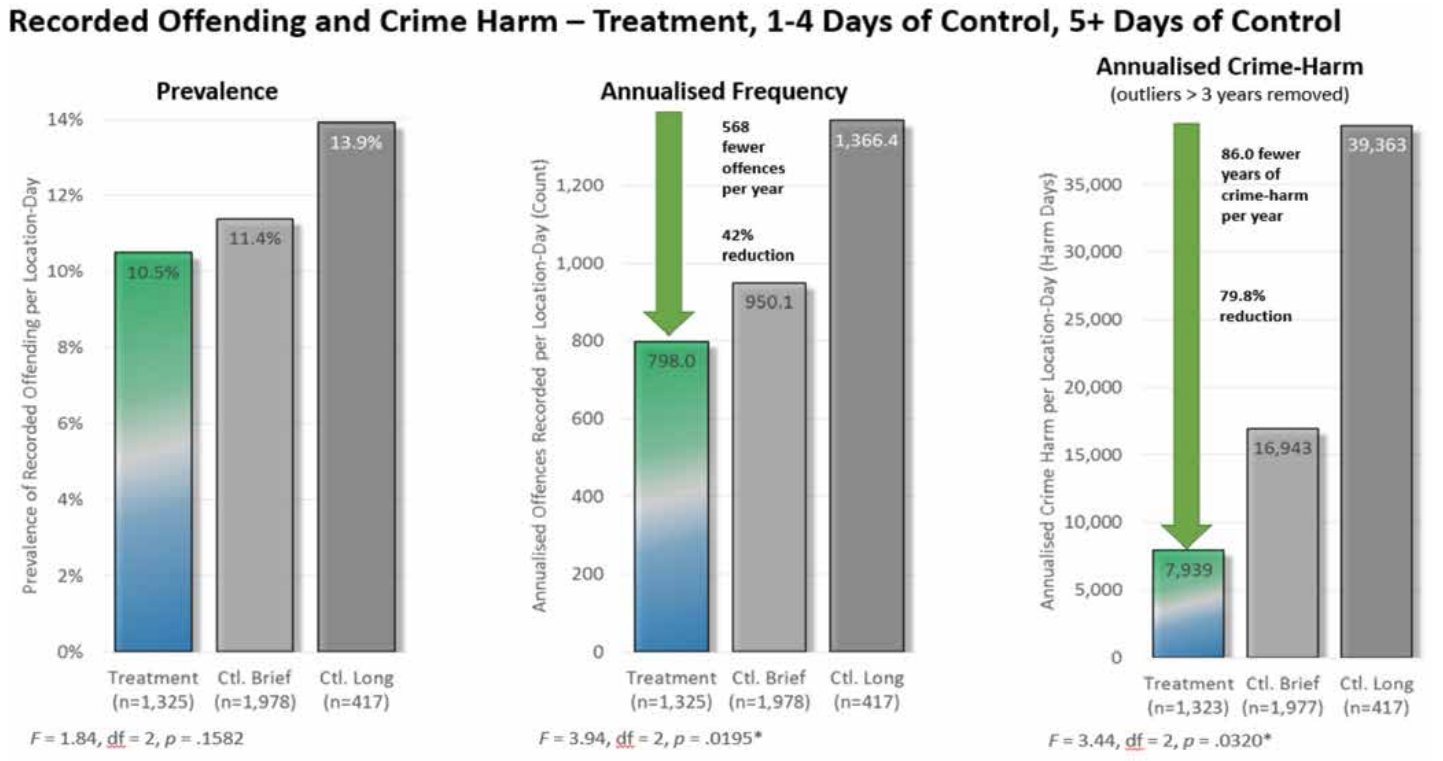
https://link.springer.com/article/10.1007/s41887-017-0017-8

https://link.springer.com/article/10.1007/s41887-017-0002-2

End Note

1. SLC crime here refers to crimes which take place in public and are generally acquisitive in nature, i.e. burglary, robbery, theft (including motor vehicle crimes), public disorder, assaults, damage, arson, etc. It excludes police generated crimes such as possession of drugs or offensive weapons and crimes that take place in residential and industrial properties where visible patrol would not reasonably deter a would be offender.

Figure 6: Prevalence, frequency and crime harm outcomes: treatment, short and long periods of BAU



Barriers to Crime: A Problem Oriented Policing Case Study

Christine McComb, Sergeant Christopher Sprague and Jesse Parmar

Abstract

Night time crime was creating high demand within a residential Perth suburb in 2017. The high demand location was bordered to the south by a major road bridged by a single pedestrian overpass. As part of a problem-orientated policing (POP) approach to problems in the area, a local Sergeant proposed blocking access to the bridge at night. With the cooperation of the local Council and funding from the Department of Main Roads, gates were installed at each end of the bridge in late January 2017 and locked nightly by Council staff.

After approximately five months, the Council was unable to continue supporting this practice and the gates were left permanently open. Analysis immediately following the bridge closure showed that crime and demand in the area of concern had strongly decreased from the year prior, however, follow-up analysis after one year shows that these decreases were largely in line with trends across the surrounding suburbs. This case study provides a local example of a small scale intervention, assessing outcomes in terms of recorded crime and calls for service, and comments on implications for future crime prevention and analysis projects.

Background

Theoretically, a location-based crime problem can be approached from two points of view. First, offenders need to believe the potential reward outweighs the risk and effort of committing an offence. Secondly, offenders only choose crime targets they already know, and this knowledge mostly arises from everyday routines. We might therefore be able to influence offenders by increasing the effort required to complete an offence, or by managing routine access to spaces containing crime targets.

Opportunity theories address how offenders make choices about their targets (Clare, Fernandez & Morgan, 2009). Rational choice theory proposes that targets are chosen by rational offenders weighing up effort and risk against perceived benefit of success. Of course, offenders are swayed by more than just direct profit incentives versus formal consequences (legal punishment); the theoretically rational, 'reasoning criminal' is in reality always constrained by circumstance, knowledge and ability (Akers, 1990).

Routine activity theory suggests offenders can only make these partially-rational choices from amongst a set of options generated from their daily (often non-criminal) activities. Routine activity theory proposes that for a crime to occur, an offender must interact with a target in time and space, in the absence of capable guardian/s. As potential offenders go about their daily lives, they gather knowledge of locations where targets may be found and where guardians may be absent, building a catalogue of locations and circumstances in which they may choose to offend (Eck & Weisburd, 2015).

Crime pattern theory describes this available suite of locations as an offender's cognitive "awareness space" (Sherman, Gartin & Buerger, 1989). Within this awareness space, particular locations will come to feature as desirable targets, influenced by their physical characteristics, their patterns of use, their familiarity to the offender and the targets they contain (Eck and Weisburd, 2015).

The scope of an offender's awareness space, and their decisions about crime targets within that space, are influenced by barriers and connectors. In simple terms connectors, such as public transport, roads and footpaths, facilitate flow of people between and within locations, increasing internal and external 'permeability'. Barriers, such as gates, rivers or highways without pedestrian crossings, impede movement, decreasing permeability (Clare, Fernandez & Morgan, 2009).

Contradictory views exist as to whether barriers and connectors act on the whole to prevent or facilitate crime (see Cozens, 2008 for one review). Decreasing permeability by adding barriers or removing connectors may decrease crime by keeping most offenders out – this prevents the interaction of offenders with potential targets, minimises the number of offenders who are aware of the location, and increases cohesion within the enclosed community (leading to consequently increased natural surveillance and perceived risk of identification by offenders). This has been dubbed the 'enclosure' theory. Furthermore, decreasing permeability may facilitate crime, as decreasing the presence of people in an area can create isolated spaces, reduce opportunities for natural surveillance and foster the perception that offenders may act with impunity.

On the other hand, increasing permeability, by removing barriers or adding connectors, may increase non-criminal use of a place, increasing natural surveillance and offenders' perceptions of risk; the 'encounters' theory (Groff et al., 2014). By the same token, increased permeability may facilitate crime by fostering offenders' movements into and around the area, providing easy escape routes and relative anonymity, and entrenching the location in offenders' awareness spaces.

A number of studies provide support for the theory that crime is positively associated with permeability, at various spatial scales (Marzbali, 2010; Bernasco, 2009). Crime risk increases with greater levels of exposure to passing traffic, ease of ingress/egress, and ease of movement within the location (Clare et al., 2009, Groff et al., 2014, Johnson & Bowers, 2010; Beavon, Brantingham & Brantingham, 1994). Foster et al. (2014) analysed links between walking activity and crime in Perth suburbs. This study found that burglary and personal crime were positively (though not causally) associated with walking activity, and suggested that living in a 'more walkable, potentially vibrant neighbourhood' might come with 'a necessary trade-off' of increased crime.

One oft-cited example of adding a barrier to reduce crime is 'alley gating'. Alleys provide inconspicuous access to adjacent properties and are often underutilised by residents, providing low-risk access for offenders. Alley gates block access to all but local residents, who are given keys and take responsibility for securing the alley. A recent systematic review (Sidebottom et al., 2018) found that alley gating is moderately effective in reducing burglary in adjoining properties, and shows modest diffusion of benefits into surrounding areas. The mechanisms by which the gates decrease crime include increasing the effort required from offenders to access protected locations, and increasing ownership and maintenance of the alley by local residents, creating the perception that the alley is regulated and chances of detection are high. In time, the gates also reduce the attraction of the wider area for offenders, decreasing offenders' awareness of the location and its surrounds and providing a diffusion of benefit.

On a broader scale, street closures and creation of 'gated communities' have in some studies been associated with crime reductions (Clarke, 2005). It is argued that restricting road traffic prevents offenders becoming familiar with an area; road closures increase the effort required for offenders to access targets and remove opportunities to escape; higher levels of community cohesion increase offenders' perceived risk of being identified and disturbed; and decreased presence of criminal outsiders can allow easier targeting of local (insider) offenders by police.

The current case study highlights several differences to alley- and street-gating. Firstly, the bridge closure was only periodic (11.00pm to 5.00am nightly) rather than permanent. Local residents, while consulted, were not provided keys or made responsible for opening and closing the gate, weakening theoretical influence on community cohesion, territoriality and natural surveillance. Alley gating and other access-way closures attempt to influence at the level of individual target selection (Clare, Fernandez & Morgan, 2009). The bridge closure, however, was aimed at disrupting offenders' routines across a wider adjacent area, rather than preventing offending within an alley, path or specific street facilitating direct access to targets.

Despite these differences, existing literature identifies two simple mechanisms through which the bridge closure may have impacted crime, acting as a barrier, the gates immediately increased the effort required to access targets on the high crime side of the bridge and in the longer term, the inconvenience of the closure may have decreased the population of offenders whose 'awareness space' included the high crime area.

Methodology

In 2017, police in Perth's North West Metropolitan District identified a 'hot' area driving disproportionate levels of local demand, which was particularly concentrated in an area bounded to the south by a major highway. Intelligence suggested that drug houses and problem addresses to the north of the bridge were attracting offenders from the south during the night, fostering crime and antisocial behaviour.

The only pedestrian access across the highway was a pedestrian overpass leading into the middle of the high demand area. As part of a POP approach to the problem area, local Police engaged with their Shire Council and, with funding from the Department of Main Roads, had lockable gates installed at each end of the footbridge.

The gates were installed on 23rd January 2017, and were manually closed and locked by Council staff each night at 11.00pm and unlocked at 5.00am. After approximately five months, the Council was unable to continue supporting this practice (Boothman, 2017) and the gates were locked open on 30th June 2017, leaving the footbridge accessible once again. Other POP efforts undertaken by local Police in the problem area included identifying problem addresses and public locations for targeted patrols as well as making other improvements to environmental infrastructure (WA Police, 2017).

Officers used local knowledge to produce a map demarcating an area that could reasonably be reached on foot from the bridge, taking into account local roads and intersections. This 1.4km^2 area became the area of interest for analysis. The area is roughly bisected by the highway, splitting the area of interest into a northern and southern sector.

The northern area comprised the high crime location of concern. Buffer areas extending 200m and 400m beyond these sectors were also identified, in order to capture any geographic displacement of crime. A circle of 2km radius centred on the bridge provided a comparison area (the area of interest and buffers all fall well within the 2km comparison area and are included in 'comparison area totals').

Crime was measured through records in the WA Police Incident Management System (IMS), and demand through calls for service in the Computer Aided Dispatch (CAD) system. The data sets are addressed separately; not all calls for service will result in a matter being recorded as an offence in IMS, as Police respond to a wide variety of non-criminal matters, and not all IMS records will arise from a CAD call for service.

The unique shape of the area of interest required crimes and tasks to be geocoded. All incidents/calls within the surrounding Police sub-Districts were identified, and geocodes were generated manually where an automatically provided location was not sufficiently reliable. Incidents and tasks were excluded from analysis where a location could not be identified. Geocoded incidents and tasks were then cross-matched with the areas of interest using ArcGIS.

Offences against the *Road Traffic Act* (RTA) and Road Traffic Code were excluded from analysis, as driving offences were unlikely to be affected by blocking pedestrian access to the bridge; where an incident comprised both traffic and non-traffic matters, the non-traffic matters were counted. Traffic related calls for service were included in analysis of 'demand'. All other crime types were included, with the proviso that they are flagged as 'counted'; an administrative field within IMS that accounts for crime recording rule changes across the years.

Throughout this report the severity of crime is reported in terms of crime harm, based on the Western Australia Crime Harm Index (WACHI) (House & Neyroud, 2018). This allocates a severity score based on criminal offence type, and is therefore not relevant for CAD tasks.

For most analysis, 'overnight' crime (occurring during the bridge closure hours) was identified based on the earliest possible occurrence date for a given incident. Additional aoristic analysis was undertaken to account for offences recorded as occurring with uncertain time frames.

Changing crime and demand was primarily assessed by comparing the treatment period, 23rd January to 30th June 2017, with the same date range one year prior and one year post. Time series analysis was undertaken to assess whether crime levels during the treatment period varied from expected levels based on five years of monthly data. This method allows changes to be identified where they occur in relation to the immediately preceding months, and accounts for seasonal variation. A cubic spline interpolation method was applied to identify if actual offences and tasks occurring within the treatment period differed from counts predicted by the time series model.

Results

Criminal Offences

The bridge closure period occurred within a longer term context of declining crime in the surrounding suburbs, Balga (which incorporates the northern part of the area of interest) and Westminster (covering the southern half) (Figure 1). In both suburbs, crime peaked in 2016 then commenced an overall decline.

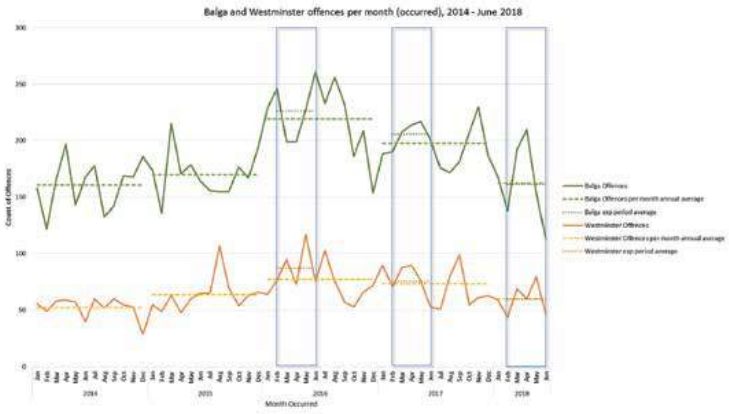


Figure 1. Suburb wide crime trends, Balga and Westminster; the treatment period and comparison periods the year before and after are highlighted. Balga encompasses the northern half of the area of interest, and Westminster the southern half. Source: IMS

Overnight crime in the northern area was lower during the treatment period than the same period the year prior, as was crime in the entire 2km comparison area.

These declines continued from the treatment period to the same period the next year (Figure 1). In the southern part, offences and crime harm increased in the treatment period compared to the same period in 2016, though the count of crime *incidents* remained steady (Figure 2).

12 of the treatment period offences were linked to a single incident; this incident was also responsible for 75% of the crime harm during the treatment period. By the same period the year after, crime in the southern half had also fallen.

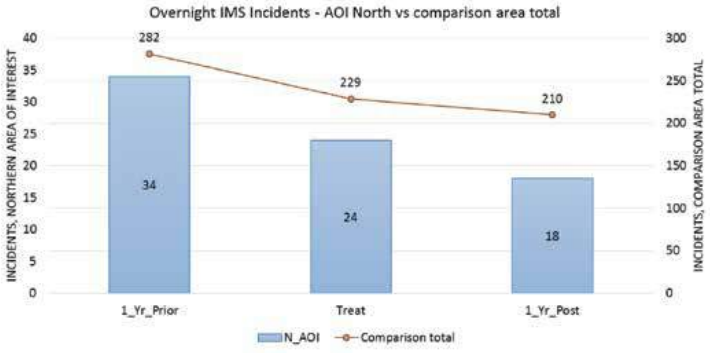


Figure 2. IMS incidents occurring between 23:00 - 05:00hrs, in the northern area of interest and comparison area

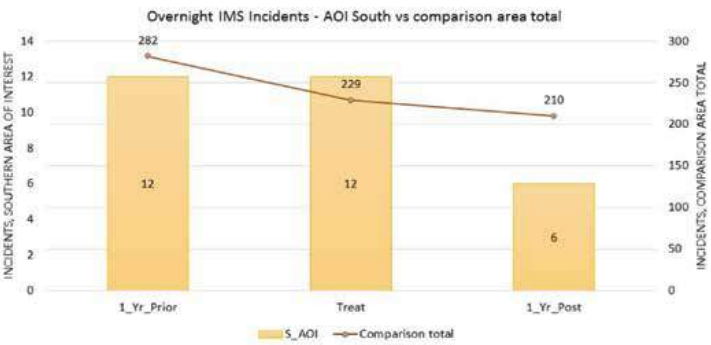


Figure 3. IMS incidents occurring between 23:00 - 05:00hrs, in the southern area of interest and comparison area

Temporal distribution of incidents was further examined using aoristic analysis, utilising a probability distribution to allow for incidents with an uncertain time frame. During the treatment period, 28% of the probability distribution for the northern area was found to occur between 11.00pm and 05.00am, compared to 24% the year prior and 21% the year after. There was virtually no change in the proportion of crime occurring during this time period for the southern part of the area of interest, or the comparison area overall.

Police Demand

In comparison to the steady declines in recorded crime seen above, police demand in the surrounding suburbs was comparatively stable across the study periods (Figure 3).

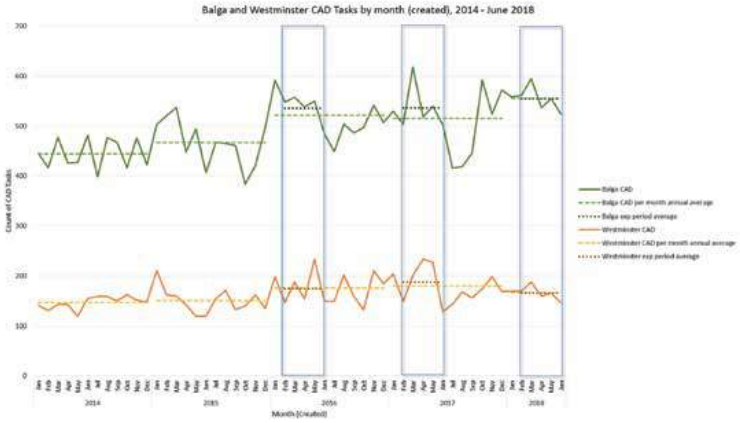


Figure 4. Suburb wide trends in CAD demand, Balga and Westminster; the treatment period and comparison periods the year before and after are highlighted. The above data includes CAD tasks of all kinds and all priority levels.

Overnight demand from the northern area was lower during treatment than the same period the year before, in terms of both task count and time spent by Police in response, despite the fact that the entire 2km comparison area recorded little change in demand. Further, while demand across the comparison area continued to decline to the following year, demand in the area of interest increased from the treatment period to the year after (Figure 5). Reports of family violence, suspicious persons, noise complaints and burglary declined from the year prior to the treatment period; family violence, suspicious persons, trespass, and welfare checks all increased again to the following year.

In the southern area, demand decreased from the year prior to the treatment period, then declined again to the following year. This followed overall comparison area trends (Figure 6). Noise complaints decreased from twelve to only three during the treatment period, but the treatment period saw the highest number of family violence, disturbance and stealing reports.

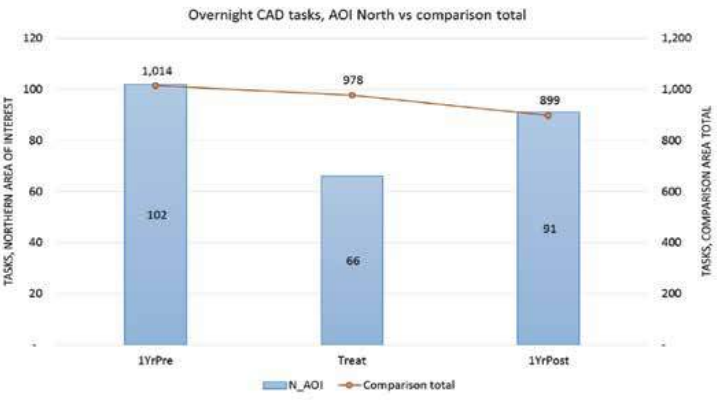


Figure 5. CAD Tasks created between 23:00 and 05:00 hrs, relating to the northern part of the area of interest and the total comparison area.

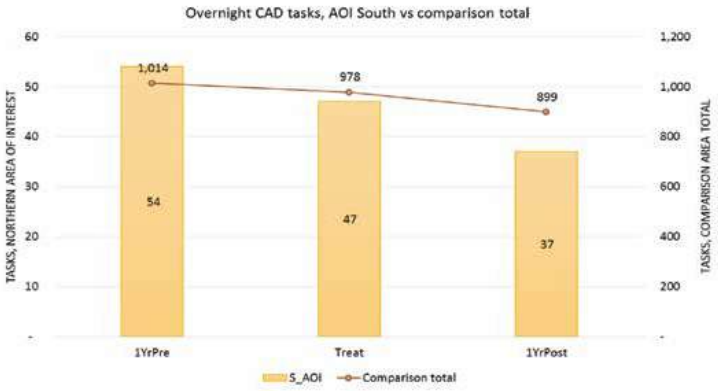


Figure 6. CAD Tasks created between 23:00 and 05:00 hrs, relating to the southern part of the area of interest and the total comparison area.

Changes in Police tasks across the entire day are similar to those seen overnight, with demand dropping during the treatment period, followed by an increase in the following year (Table 1). This holds true for both the northern and southern parts, and is in contrast to the entire comparison area which saw all-day tasks slightly increase during the treatment period and then decline the following year.

When compared to the year prior, the proportion of all tasks that were generated during the night hours was at its lowest in the northern area of interest during treatment; a decline from 17% in 2016 to 12% during treatment, and an increase to 14% in the year following.

By contrast, in the southern area of interest, the gate closure period was associated with a slight increase in the proportion of tasks arising during the night hours (16% to 17%).

Geographical displacement

Initial analysis of overnight criminal offending (above) resulted in no clear association between the bridge closure and changes in overnight crime, making it impossible to attribute any changes in crime in surrounding areas to the bridge closure. Hence, no analysis of displacement of criminal offending was undertaken.

Overnight CAD demand within the northern area of interest, its 200m buffer and the total comparison area all declined during treatment, but the 400m buffer area (locations more than 200m but less than 400m from the area of interest) recorded an increase (Table 2).

In the southern part, while the area of interest declined, both the 200m and 400m buffer areas recorded an increase in demand during the treatment period (Table 2).

Similar analysis was conducted for both crime and demand occurring at all times of day. In comparison to the year before:

- Criminal incidents and offences within the southern area of interest fell by approximately ten percent during the treatment period, but increased by 20% in the 200m buffer area;
- Criminal incidents fell by 27% in the northern area of interest, but fell by only 2% in the 200m buffer area; and
- The 400m buffer area in the northern part recorded an increase in demand during the treatment period, while the area of interest, 200m buffer and entire comparison area fell.

Time Series Analysis

In order to provide suitable intervals, time series analysis was conducted on monthly offences and tasks, with February to June 2017 flagged as the treatment period. Five years of data was collected for this analysis and, due to limited time resources, data was not 'cleansed' for geocoding accuracy to the same degree as the analysis above. Traffic offences were excluded. Analysis was conducted over the north and south areas of interest combined, based on monthly counts.

Based on monthly offence counts, the actual overnight offences recorded during the treatment period were lower than the model predicted. On average, actual overnight offences were 12.24 fewer per month than predicted values (+/- 3.93). However, seasonal variability in the data and relatively low offence counts occurring in the 2300 – 0500hrs period make apparent trends vulnerable to skewing by small numbers of offences: by eye, the predicted values during this period appear highly inflated (Figure 7).

	Northern Area of Interest		Southern Area of Interest		2km comparison area	
Period	**CAD Total**	**CAD hours**	**CAD Total**	**CAD hours**	**CAD Total**	**CAD hours**
1 Year Prior	604	1,276.5	336	677.3	6,233	15,838
Treat	544 (-10%)	894.7 (-30%)	278 (-17)	335.0 (-51%)	6,527 (+5%)	9,833 (-38%)
1 Year After	659 (+21%)	594.5 (-34%)	313 (+13%)	273.3 (-18%)	6,176 (-5%)	6,798 (-31%)

Table 1. Total (all times of day) CAD tasks recorded in the area of interest and comparison area. CAD times are reported for attended tasks only, and has been calculated based on minutes elapsing between task Dispatch and Close.

	CAD Total (night)					
Period	**AOI North**	**200m buffer**	**400m buffer**	**AOI South**	**200m buffer**	**400m buffer**
1 Year Prior	102	62	59	54	64	49
Treat	66 (-35%)	32 (-48%)	78 (+32%)	47 (-13%)	69 (+8%)	49 (0%)
1 Year After	91 (+38%)	43 (+32%)	62 (-21%)	37 (-21%)	57 (-17%)	44 (+10%)

Table 2. Changes in overnight CAD demand in the northern and southern part of the area of interest, and respective 200m and 400m buffers.

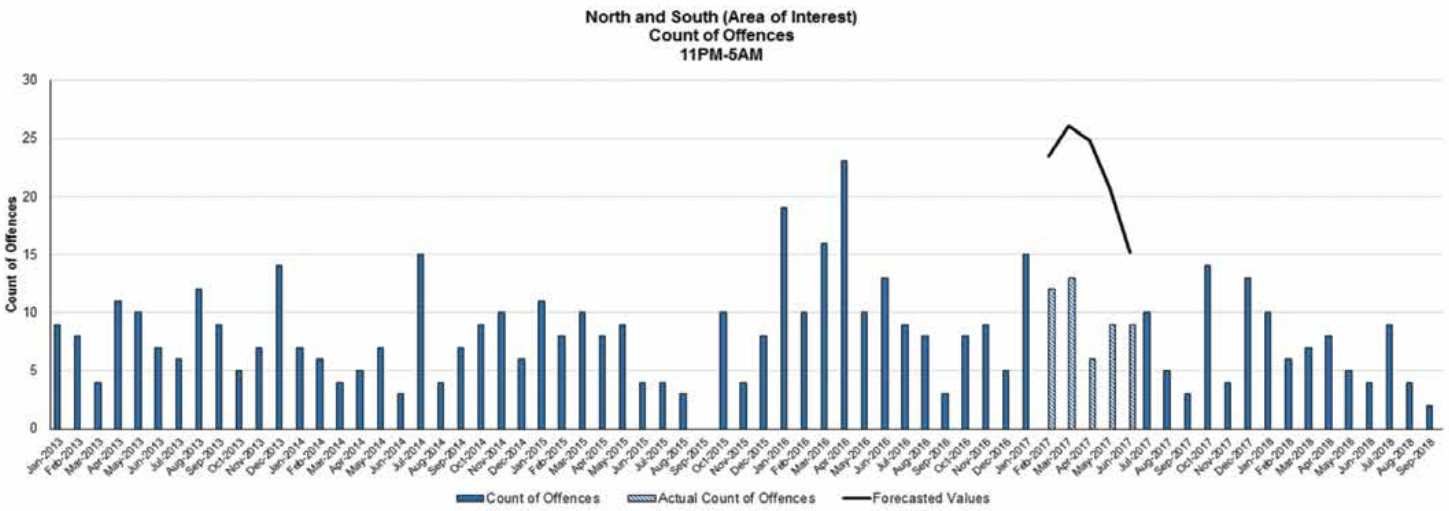


Figure 7. Predicted and actual overnight offences by month, area of interest total

Recorded offences across all times of day were also lower than predicted monthly values for most of the treatment period; offences occurred at a rate on average 14.74 offences fewer per month than expected (+/- 11.90).

Tasks created during the experimental period were overall similar to predicted values. Actual overnight tasks were on average 2.26 tasks per month higher than predicted tasks, but with confidence intervals (-8.49 to 3.98) indicating this is unlikely to be significant.

Tasks across the entire day exhibited a similar trend, with March 2017 recording higher than predicted offences and other months lower. During the treatment period, on average 27.32 fewer tasks occurred per month than predicted, but with very broad confidence intervals (0.019 to 54.633).

Discussion

The closure of a footbridge between the hours of 11.00pm and 05.00am was proposed as it would have minimal impact on local law-abiding community members and require minimal public resources, while acting as a barrier to offenders responsible for crime and antisocial behaviour in an adjoining problematic area. The bridge closure hours appropriately targeted a time of night where non-criminal use of the bridge, and thus protective surveillance of the area, would be at its lowest. When interim analysis was conducted at the end of the treatment period in 2017, declines in crime in the northern area of interest compared to the year prior were interpreted as encouraging signs that the bridge closure was having a substantial effect (Taylor, 2017). With another year's data available for additional context, it appears this decline was more likely attributable to a longer term decline in crime to a level prior to an early 2016 spike. Criminal incidents recorded in the area of interest around the footbridge occurred at relatively low frequency, particularly at night, making clear trends difficult to determine, but changes within the area of interest generally echoed comparison area trends. Small scale changes in recorded crime in the southern part of the area of interest were also mainly in line with surrounding trends and do not provide convincing evidence that the bridge closure period was associated with decreased recorded crime.

Changes in Police demand through CAD provide more encouraging evidence that the bridge closure had a positive effect, with the high-crime northern area generating fewer Police tasks during the treatment period compared to the same period the year before and after, resulting in a substantial decrease in hours spent by Police attending tasks in this area. These changes were distinct from comparison area and suburb-wide trends, supporting the hypothesis that the bridge closure period was associated with lower localised night time demand. The declines in demand related mainly to noise complaints and disturbances, fitting the proposed model of antisocial offenders on foot attending problem addresses in the area.

The decreased night time demand in the northern part should, however, be seen in the context of trends across the entire day. Demand at all times of the day, not just at night, was also at its lowest during the treatment period. It is possible that difficulty in accessing drug houses and other targets in the northern half at night led to offenders seeking drugs elsewhere and making broader changes to their daily routines (residual deterrence/diffusion of benefits). However, it is just as likely that an increase in targeted crime prevention efforts occurring during the day, as part of the POP response to local crime, in fact caused a decrease in total demand, with a consequent effect on night time demand.

Time series analysis shows some differences between predicted and actual crime and demand during the treatment period compared with five year monthly patterns, with overnight criminal offences slightly lower during treatment and demand very slightly higher. Limitations on data quality (relating to spatial accuracy of offence data) and sample size (only five monthly data points were available for comparison) mean this analysis was not able to conclusively demonstrate an impact of the bridge closure.

There are intriguing indications within the data that a degree of geographic displacement may have occurred, though these are far from conclusive. If offenders who were unable to cross the bridge simply moved their offending to other convenient locations, we would expect any decline in the area of interest to be accompanied by increases in crime/demand in nearby areas. During the bridge closure the southern part of the area of interest did see a slight increase in the proportion of demand that arose during the overnight period. It is possible this reflects night time activity occurring in the south where it may ordinarily have occurred in the north, but this change was small in scale (3%). The increase in tasks arising from the 400m northern buffer area and 200m/400m southern buffer areas during treatment are potential indicators of displacement: it is possible that closing the bridge led to offenders offending in 'novel' adjoining areas. However, the number of offences recorded in the buffer areas was so low that apparent trends may be unreliable, and changes in demand were not consistent enough to lead to a firm conclusion that surrounding areas suffered adverse effects.

While these results may be promising in terms of reducing Police demand, the simple before-and-after nature of the evaluation make it impossible to clearly determine what, if any, impact on crime or demand was caused by the bridge closure as opposed to other factors, such as arrests and preventative patrols. Apprehension of local offenders, eviction of problem residents, proactive deterrence of street level crime and/or disruption of local drug markets may all have had an effect on crime and demand. The nightly removal of a single 'connector' between two otherwise fairly permeable suburbs may have impacted such a small subset of offenders and narrow range of crimes/behaviours that trends were impossible to identify. Further, the areas of interest were defined based on distances a visiting offender might travel on foot at night-time; while this was appropriate to the intervention, the small size of the analysis area limited the number of incidents and tasks counted in each period, making changes difficult to identify.

Finally, the boundaries drawn around the study area, while logical, were arbitrary, and choosing a different boundary for the study area, buffer zones and comparison area may have generated a different, potentially more or less accurate result.

Enforcing physical barriers to limit offenders' routines, and hence their exposure to target areas, has a strong theoretical grounding and remains relevant in locations such as this one. However, expectations of a demonstrable impact on crime may need to be tempered. Scrutinising crime data may not provide compelling outcomes when recorded crime is already low; in this case even the highest demand area of interest recorded only an average 20 CAD tasks per month in the highest, year-prior period.

Instead, alternative outcome measures tailored to the policing problem at hand could be developed, such as targeted surveys to ascertain the frequency of low-level disorder, whether or not formally reported to police; interviewing offenders to ascertain their knowledge of the closure and whether it had any impact on them; and analysis/ intelligence gathering regarding the proportion of offenders and late-night visitors that are local or external to the area of interest. There are also a range of other systems which may provide some measure of antisocial behaviour, including the WA Police Graffiti database, hoon complaints and Criminal Code Infringements.

Better trial design could also assist in more explicitly identifying the impact of similar crime prevention interventions in the future. For example, identifying similar high demand areas in separate locations may allow a more reliable comparison of outcomes, though differences between locations' underlying permeability, socio-economic status and crime rates would still need to be accounted for.

Problem-oriented analysis of locations suitable for interventions such as this should ensure stakeholders understand the characteristics of crime types present (i.e. is crime and disorder more likely to be fuelled by offenders on foot or in vehicles?), as well as existing permeability (i.e. will adding a single barrier or connector make a practical difference to offender access?) and the potential impact on residents of changing the amenity of their local area.

Every intervention that alters public access to a location affects both offenders and non-offenders in the local community, and interventions must consider community needs as well as crime deterrence. Liaison and negotiation with local government and other stakeholders is required to balance the crime reduction goals of police with the interests of local law-abiding communities.

Conclusion

Demonstrating a crime and/or demand reduction benefit has proved difficult in a relatively low-crime environment and small scale area of interest. The closure of the footbridge was a straightforward, problem-oriented crime prevention effort that came with minimal resource impact on WA Police, and involved positive public engagement and publicity. Should similar locations be identified elsewhere or funding be sought to recommence this bridge closure, effort should be focused on monitoring impacts beyond recorded crime and demand, and more stringently tracking separate Police activities that impact upon local recorded crime.

Bibliographies

Christine McComb joined the WA Police Evidence Based Policing Division (now the Office of Applied Criminology) in 2015 after working in WA Police State Intelligence for four years. Her current role as Data Analytics and Assessment officer involves research design, evaluation and assistance for a range of Evidence Based Policing projects.

Sergeant Christopher Sprague has been a Western Australia Police officer for six and a half years, and joined the Evidence Based Policing Division in 2017 after four years in the Metropolitan District. Sergeant Sprague oversaw the development and implementation of problem oriented policing practices in the District, including the installation of the bridge gates.

Jesse Parmar joined the WA Police Force as a graduate in 2016. Jesse currently occupies a role as Data Analytics and Assessment Officer within the Office of Applied Criminology.

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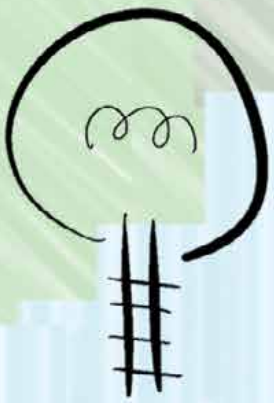

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The Murder of British MP Jo Cox: Some Implications for Close Protection Practitioners

Josh Ushay and Felicity Riddle

On Thursday 16 June, 2016, British Member of Parliament (MP) for Batley and Spen, Helen Joanne "Jo" Cox was murdered while preparing to meet her constituents in Birstall, near Leeds, in northern England. Her attacker was Thomas Alexander Mair, a 52 year-old male who lived in the area. Armed with a firearm and an edged weapon, Mair attacked Cox shortly after she exited her vehicle while en route to a constituency surgery she was due to hold at a local library. She was not being provided close protection from UK law enforcement at the time and died of her injuries shortly after being admitted to hospital. She had been shot three times, once in the chest and twice in the head, with rounds passing through both her hands as she tried to protect herself. She had also been stabbed 15 times in the heart and lungs (Cobain et al., 2016; Stelloh, 2016).

The attack received national and international media attention. UK Prime Minister at the time, David Cameron, said that the country was "rightly shocked" by the murder: it was the third time in 16 years that a British politician had been assassinated. It took place less than two weeks before a United Kingdom (UK) national referendum on whether or not the UK should remain in the European Union. Cox, who had an extensive history of campaigning for progressive causes generally, was strongly in favour of "Remain".

Mair, conversely, was strongly anti-progressive; he reportedly shouted "put Britain first" as he carried out the attack. At various points during his trial, Mair stated: "my name is death to traitors…freedom for Britain…keep Britain independent… [and] Britain will always come first". He reportedly both purchased and sent correspondence to anti-progressive publications; he had attended anti-progressive meetings and was linked to both the National Front political party and the English Defence League—both anti-progressive organisations. Nazi paraphernalia and information on construction of Improvised Explosive Devices (IEDs) were allegedly found at his place of residence after his arrest.

Prior to the attack, Mair had reportedly conducted internet searches on Nazism; white supremacism; the Ku Klux Klan; Israel; public shootings and the Norwegian radical nationalist, Anders Behring Breivik. According to media reports, Mair reportedly targeted Cox because he saw her as "a traitor to white people" (Australian Broadcasting Corporation, 2016; Cobain et al., 2016; Stelloh, 2016).

Based on information currently in the public domain, the question of whether Mair was a lone actor terrorist, or a fixated individual with violent tendencies (Corner & Gill, 2015; Pathé et al., 2017), remains unanswered. Like many fixated individuals, Mair was not known to Cox and did not make contact with her prior to the attack. He was also male and aged in his 50s, which, at almost twice the average age of lone actor terrorists, fits the observed demographic for individuals with fixations almost perfectly (Corner & Gill, 2015). However, unlike many fixated individuals, Mair was not motivated by any deeply personal cause; his actions were evidently framed as part of a wider movement, characterised by an often militantly anti-progressive ideology. To further complicate issues, there were common denominators for both types of behaviour—critical among which was the issue of mental health. The day before the attack, Mair reportedly sought treatment for depression at an alternative therapy centre that was located approximately 300 metres from the exact site of the murder.

The centre's owner asked Mair to return the next day for an appointment. Mair also reportedly suffered from epilepsy for many years, telling a local newspaper in 2010 how volunteer work had "done me more good than all the psychotherapy and medication in the world" (Miller, 2016). Cox herself had raised concerns over the provision of mental health services in the area and had only days before had publicly expressed fears to local councillors that adult mental health services were critically underfunded. As one colleague stated, "we talked about mental health and the difficulties for people with mental health, particularly people who don't know how to access the system and fall through the net" (Miller, 2016). It now appears that Thomas Mair, tragically, was one of those individuals

This essay uses Jo Cox's murder as the context for a comparative analysis into why security risk assessments provide more relevant and actionable advice to close protection decision-makers than threat assessments. It has three key conclusions: first, an apparent absence of threat activity does not necessarily mean that threat activity is unlikely—particularly when a principal undertakes patterns of movement that can be anticipated with a high degree of confidence. Second, vulnerability issues are just as critical to assessments of threat likelihood as identified threat activity itself. Third, security risk assessments are the most rigorous, robust and defensible ways of providing relevant and actionable advice to close protection decision-makers. This is particularly important when comparing them to threat assessments, as security risk assessments, unlike threat assessments, directly deal with vulnerability and consequence. In Jo Cox's case, these two issues were critical: she was physically vulnerable to close-range approaches during a movement that was advertised in advance, and her attacker did not appear to be known to law enforcement prior to the incident. The severity of the outcome was extreme, given she was shot and stabbed to death. These vulnerability and consequence considerations, respectively, would have been absent in any assessment that was driven solely by known pre-existing threats.

To understand why security risk assessments provide more relevant and actionable advice to decision-makers than threat assessments, it is important to delineate the differences between the two. Threat assessments, firstly, are driven by the relationship between two factors: intent and capability—what a threat entity seeks to achieve in relation to what that threat entity is actually able to achieve. A good example of a "threat entity" with low intent and high capability in a strategic sense can be found in the hypothetical scenario of a United States' conventional invasion of Australia's eastern seaboard. In and of itself, capability is high; the United States (US) has the most advanced military capabilities in the history of humanity. Its power projection capabilities are particularly unparalleled.

It dominates the world's skies; it dominates the world's oceans; its network of bases around the world allows it to influence regional balances of power far from its homeland; its technological and training prowess means it can successfully deter adversaries in possession of numerically larger forces, and it can deploy devastating levels of precision strike-power around the globe with little warning (Friedman, 2004). There is a very good reason why very few nation-states have provoked direct, head-to-head military conflict with the US since

the end of the Cold War; the risk of defeat, quickly and decisively, is far too high.

Could the US successfully invade Australia's eastern seaboard? Absolutely. Would it seek to do so? Highly unlikely. The US simply has no intent. This is due to enlightened self-interest. The US is a maritime power whose prosperity relies on freedom of the seas. As an export nation with no immediate land neighbours, Australia's prosperity also relies on freedom of the seas—meaning in turn that it also relies on the US to secure these freedoms. Attempts by US rivals, like China, to project power in the Asia-Pacific region means the US needs allies like Australia who can help push back against any expansion. Australia, as a potential target for Chinese expansion in a number of forms, needs powerful allies like the US whom it can rely on for protection.

Perhaps most importantly though, the US and Australia are both liberal democracies who are accountable to their citizens and are governed through the informed consent of their people—and as history shows, liberal democracies very rarely make war against other liberal democracies. So the key takeaway in this scenario is this: a US invasion of Australia's eastern seaboard reflects a "threat entity" with high capability but low intent.

Conversely, an example of high intent and low capability can be found in the following hypothetical and fictitious scenario: law enforcement received information that, over the course of 48 hours, several threatening statements were made on the social media outlet Twitter, specifically directed towards a Minister for Health. The tweets, apparently made by a single individual, were in response to substantial adverse media attention surrounding the Minister's alleged misuse of travel expenses, which had reportedly occurred on numerous occasions over the Minister's career. They also coincided with media reports in relation to a school shooting in the US that occurred the previous week.

The tweets stated that the user would *"put a bullet in the Minister's head"*, that the user *"would like to go to Canberra and put the [expletive] down like the dog that she is"* and that the Minister *"is a [expletive] that doesn't deserve to live."* At first glance, the user's intent was high: he had made specific and unambiguous statements of harm against a principal—noting that it is one thing to support acts of violence committed by others, and another to indicate the desire to commit such acts oneself. The user made the statements repeatedly on a number of separate occasions, and also mentioned a specific mode of attack—use of firearms—along with a desire to travel to a specific location where the principal spends a lot of her time.

However, law enforcement enquiries yielded the following: the Twitter user in question was a 28-year-old male who was wheelchair-bound and suffering from terminal cancer. He lived in regional Western Australia, over 1000 kilometres from Canberra. He did not have a driver's licence, did not own a vehicle and relied on his mother, who was also his primary carer, for travel to and from his residence. While he was severely disaffected over the controversy surrounding the Minister for Health's alleged misuse of expenses—especially given his own health situation—he had no known history of owning a firearm and had no known access to firearms at the time. As such, the capability to act upon his intent was low: he could not travel to Canberra without the assistance of his mother, he was not physically mobile, he was unlikely to be competent in the use of firearms, and had no way of acquiring a firearm in the first place. So while intent might have been high in this specific scenario, the capability to act on this intent was low.

The critical difference between threat assessments and security risk assessments is that the former starts and ends with intent and capability. The latter, on the other hand, addresses this but then incorporates two further factors: vulnerability and consequence. It combines current and historical indications of threat activity with the following considerations; is the principal's activity advertised in advance? Is the activity accessible to the public? What are the pre-existing levels of security mitigations surrounding the activity? And if threat activity did eventuate, how severe would the consequences be?

All of these considerations are critically significant if there are threats in the security environment that are not known to law enforcement: if previously undetected threat activity actually did materialise, how vulnerable would the target be?

This is immensely relevant to Jo Cox's murder. One of its starkest aspects was its similarity to a number of high-profile assassination attempts throughout history in one crucial context; vulnerability—particularly in relation to patterns of movement that can be anticipated with a degree of confidence. This combination of factors provides an awareness of a principal's specific location, at a specific time and on a specify date. When these events also involve access to the public, even at considerable range, the results can be catastrophic.

The 22 November, 1963 assassination of US President John F. Kennedy in Dallas, Texas, is a good example; in September that year, a local Dallas newspaper reportedly announced in a front page article that President Kennedy was planning a tour of four Texan cities: San Antonio, Houston, Fort Worth and Dallas. Another local newspaper confirmed that President Kennedy would actually be visiting Texas between 21–22 November, with Dallas being one of the destinations.

Between 19 and 22 November, 1963, a number of media outlets then detailed the precise route of President Kennedy's motorcade while in Dallas, which involved a movement through Dealey Plaza, the eventual site of President Kennedy's assassination. One outlet even reported that "the motorcade will move slowly so that crowds can 'get a good view' of President Kennedy and his wife" (Associated Press, 1963; Warren, 1964).

From a vulnerability perspective alone, this was highly concerning: President Kennedy's movements were advertised in advance and would involve relatively close contact with members of the public—meaning his attacker was able to anticipate where Kennedy was likely to be vulnerable and when.

The 30 March, 1981 attempted assassination of US President Ronald Reagan is another example. Three days before the attempt, Reagan's attacker, John Hinckley, arrived in Washington DC and acquired accommodation at a hotel in Washington's central business district. Shortly thereafter, a local newspaper reportedly published Reagan's short-term schedule, indicating he was due to speak at a labour convention at the Washington Hilton, which was within two kilometres of Hinckley's place of accommodation. Hinckley travelled to the event and positioned himself among a crowd of approximately 300 people who had hoped to see the President in person.

As Reagan exited the Hilton and was walking to his limousine, Hinckley—who was approximately five metres away—raised his handgun and fired six times, missing his target on all six attempts, before being contained by Reagan's close protection team (DeBecker et al., 2008; Kiger, 2014; Linder, 2001). Again, the principal's vulnerability to this type of threat activity was amplified because his movements were advertised in advance and involved relatively close contact with members of the public: his attacker was able to anticipate where his target was likely to be vulnerable and when.

There are many other instances that illustrate this theme—with US-based cases being particularly attractive due to the vast amounts of publicly accessible, open source material. One was the assassination of US President Abraham Lincoln on 14 April 1865. Lincoln's attacker, John Wilkes Booth, was a stage actor who was familiar both with the layout of Ford's theatre in Washington DC, where the assassination took place, and many of the staff members who worked there. Earlier that day, Booth visited the theatre to pick up his mail and subsequently learned that Lincoln was expected to attend a play at the location that evening (Swanson, 2006; Steers, 2001). Another example was the assassination of US President William McKinley on 6 September 1901. McKinley was killed while greeting a crowd of well-wishers at the Pan-American Exposition in Buffalo, New York: the offender, Leon Czolgosz, evidently knew that McKinley would be engaging with the public, stood in a receiving line where people were able to shake hands and exchange pleasantries with the President McKinley, and, upon reaching the front of the line, produced a handgun and shot the President in the abdomen at point-blank range (Leech, 1959; McElroy, 1996; Miller, 2011). Another, more recent example involved the 8 January, 2011 attempted murder of US Democratic Congresswoman Gabrielle Giffords. Giffords held a "Congress on Your Corner" constituent meeting outside a local supermarket in Tucson, Arizona. She was engaging with a crowd of around 20–30 people when Jared Lee Loughner, her attacker, drew a handgun and shot her in the head at point-blank range. The fact that numerous members of the public were present—and that the meeting's primary purpose was to facilitate engagement with local constituents—demonstrated that Loughner, like many others at the event, had a clear sense of where Giffords would be, and when. On the day of the attack, Giffords' Twitter account stated that "My 1st Congress on Your Corner starts now" (Von Drehle, 2011).

It is a recurring theme; principals are highly vulnerable to premeditated unlawful activity when undertaking movements that are advertised in advance and that involve close-range interactions with the public. Time and time again, acts of violence against principals that have resulted in death or serious injury occurred because a given threat entity was able to anticipate a principal's movements with a high degree of confidence. Jo Cox's murder, sadly, was no different; Thomas Mair reportedly accessed Cox's Twitter feed through the library's computers in the days before the attack at the same library. He also approached a staff member there and asked if he was required to book an appointment in order to meet with Cox. As one media outlet reported, the staff member replied that "there was no need to make an appointment, just turn up" and gestured towards a nearby poster displaying the details of the event. Armed with this knowledge, Mair then spent several hours waiting for Cox to arrive at the location, wearing a white cap, and at one point, eating a Cadbury flake (British Broadcasting Corporation, 2016; Spillett, 2016). He knew almost exactly where Jo Cox was going to be and when she would be there.

So, prior to Cox's attendance at her constituency surgery on Thursday 16 June, 2016, why would a security risk assessment have been more useful to close protection decision-makers than a threat assessment? The answer revolves around the crucial factors of vulnerability and consequence. It is unlikely that any purely threat-based methodology would have yielded any meaningful conclusions. For example, Thomas Mair was not known to law enforcement in relation to Cox specifically (Cobain et al., 2016), meaning there were no specific indicators of intent. Reportedly, he had not contacted Cox at any time in the past; he had not sent her any threatening correspondence; he had not made any prior physical approaches and had not been associated with any movements or locations associated with Jo Cox in any way. To be sure, a hypothetical threat assessment would take into account the possibility of broader disaffection towards Cox from those opposed to her public positions on many issues. However, with no specific indication of this type of sentiment from any specific individuals, this is as far as any exploration would progress—meaning the final judgement would sit firmly on the low end of any assessment hierarchy addressing intent.

Further, capability would likely be non-existent. It is highly unlikely that Mair's possession of firearms, and his use of readily-available edged weapons that required little-to-no training, would have featured in any threat-based assessment undertaken prior to the event. This is because assessments of capability are usually triggered after assessments of intent have reached a given threshold. This approach is a much more prudent use of intelligence resources than the reverse: for example, it is one thing to target intelligence resources towards an individual who had expressed disaffection towards Jo Cox specifically in some way, and then evaluate that individual's capability to act upon the disaffection. It is another thing entirely to target those same resources towards every single individual in the region who was known to possess firearms, in order to evaluate whether or not any of those individuals had communicated any adverse intent towards Cox. So if capability is low, if not non-existent, and intent was also low, if not non-existent, then any threat-based assessment surrounding Jo Cox's constituency surgery on 16 June, 2016 would likely be low. Based on this, the activity's priority for close protection decision-makers will be low as well.

A security risk assessment, however, produces a markedly different outcome. While pre-existing threat indicators may have been low, this did not necessarily mean that threat activity was unlikely—and this was due to vulnerability. First, Cox was an attractive target generally for individuals with anti-progressive worldviews and ideologies: in December 2015, she was one of five UK MPs who abstained from voting on efforts to approve UK military intervention against the Islamic State in Iraq and the Levant (ISIL) in Syria. She was national chair of the Labour Women's Network and a senior adviser to the "Freedom Fund", an anti-slavery charity. She was associated with the Labour Friends of Palestine & the Middle East, which was opposed to the blockade of the Gaza Strip, and had worked with humanitarian aid groups, Oxfam and Oxfam International. In 2015, she spoke out publicly against the "racism and fascism" of Britain First, a radical nationalist political group with strong anti-Muslim platforms (Martin, 2016; Millward, 2016). Second, her movements were known in advance, both through social media and efforts to promote her meeting with constituents through the local community. Third, the specific movement Cox undertook made her highly vulnerable to close-range contact. She was attending a public event with very little known security mitigations in play, meaning she was potentially exposed to multiple avenues of approach, simultaneously. So despite limited threat indicators in advance, vulnerability was high—meaning in turn that threat activity might not have been highly likely, but it certainly wasn't unlikely.

Then there is consequence. As Cox was an attractive target for militantly anti-progressive organisations with a history of engaging in politically motivated violence, death or serious injury was not outside the realm of likely scenarios if threat activity actually occurred. The consequences arising out of this type of threat activity are very different to those arising out of non-violent unlawful protest activity, tactics among which often include trespass, breaches of the peace, offensive language and refusal to follow police direction.

From a decision-maker's perspective, then, it is telling to compare the conclusions of a hypothetical threat-based assessment of Jo Cox's 16 June, 2016 attendance at her constituency surgery with those of a hypothetical security-risk-based assessment. One indicates that the level of known threat activity is low, which, if operational resource prioritisation was based on a threat-based model, would suggest that the priority for that movement was low. The other indicates that, while threat activity is low, both vulnerability and consequence are high, meaning that the overall risk is at least moderate. The resourcing priority, therefore, would also be at least moderate. When faced with the choice between a threat-based assessment that indicates a low resourcing priority, and a more rigorous security risk-based assessment that indicates a moderate resourcing priority, the most prudent option for close protection decision-makers is clear.

So, in sum, it is proposed that there are at least three critical implications for close protection practitioners in relation to Jo Cox's murder. First, an apparent absence of threat activity does not necessarily mean that threat activity is unlikely. Second, vulnerability considerations are just as critical to likelihood as considerations surrounding identified, known threat activity, particularly in relation to principals' patterns of movement that can be anticipated with a high degree of confidence. Third, risk assessments are much more relevant and actionable for close protection decision-makers than threat assessments, and this is due to the fact that assessments directly deal with vulnerability and consequence, whereas threat assessments do not.

It is important to emphasise that all of the potential insights mentioned above are in no way a criticism of UK law enforcement's close protection practices surrounding Jo Cox's murder. For law enforcement agencies in liberal democracies, close protection is one of the greatest challenges to get right. First, there is the problem of applying limited resources to myriad commitments. There are hundreds of Government ministers, Members of Parliament, Senators and other elected officials who engage in thousands of movements each year—the vast majority of whom could make legitimate claims to receive close protection. It is virtually impossible to effectively mitigate every single danger, in relation to every single activity that every single principal undertakes, even with dramatic increases in funding, training and staffing. So while it may be tempting to view the Jo Cox murder as some sort of shortcoming on behalf of UK law enforcement, this almost certainly was not the case. Expecting a zero failure rate, given the commitments in relation to available resources, is neither realistic nor fair.

Compounding this difficulty is the nature of domestic politics in democracies, specifically, the way in which protective security imperatives surrounding political figures is often in direct conflict with the political self-interest of those same figures. Being accessible to voters, particularly at public events, is key to being seen as "one of the people". It helps demonstrate that they fully identify with the needs and concerns of the voting public. However, the principal's need to create favourable perceptions in the minds of their constituents creates a constant state of tension with the protective security provider's need to minimise the principal's vulnerability to threat activity—a key part of which is accessibility. A principal who attends public events surrounded by highly visible close protection officers faces the very real possibility of being perceived as self-important, out-of-touch and superior to those they are representing. It is a perception they obviously try to avoid at almost all costs: the downside being that they are potentially putting themselves in harm's way from lone actors who are seeking to engage in grievance-fuelled violence and are not known to law enforcement in advance. As Jo Cox's murder clearly demonstrates, this is a very real danger. So, given these stark challenges, close protection decision-makers require the most relevant, rigorous, robust, actionable and defensible advice in order to prioritise their resources. Security risk assessments, in the clear absence of any better alternative, do exactly that.

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