

Shawnee, KS Site Spotlight Released

The Smart Policing Initiative is pleased to announce the release of our latest Site Spotlight report on the Shawnee, KS SPI. From the report:

From 2008 to 2010, the city of Shawnee, Kansas, experienced a 22 percent increase in violent crime. At the same time, the Shawnee Police Department (SPD) was acutely aware of persistent traffic accident hot spots. Moreover, budgetary constraints resulted in nearly a 5-percent decrease in the department's sworn staff in one year (2009). The SPD leadership became increasingly concerned about their ability to maintain a sufficient level of service, and to effectively respond to changing crime trends in the city.

In response to these emerging concerns, the SPD implemented the Data-Driven Approaches to Crime and Traffic Safety (DDACTS) model beginning in July 2010. DDACTS identifies locations where crime and traffic problems disproportionately co-occur, and then deploys increased police presence and high-visibility traffic enforcement (HVTE) in those areas. The DDACTS model is grounded in seven guiding principles that highlight collaboration, data-driven decision-making, hot spots policing, and ongoing program assessment and dissemination of findings. In 2011, the Department received funding from the Bureau of Justice Assistance's Smart Policing Initiative (SPI) to support the implementation of DDACTS and conduct a rigorous evaluation of the impact of the DDACTS model on crime and automobile crashes in the city of Shawnee.

You can read the report in its entirety on the SPI website here:

<http://www.smartpolicinginitiative.com/tta/spotlight/shawnee-ks-site-spotlight>



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Congratulations, Kansas City SPI!

Join us in congratulating the Kansas City, Missouri SPI research partners for their recognition with the FBI Director's Community Leadership Award. This award is presented to individuals and organizations for crime-prevention efforts, and was awarded to research partners Ken Novak and Andrew Fox for their work on KC NoVA (for more information on this project, see page 3).



About Us

SPI is a collaborative effort among the Bureau of Justice Assistance (BJA), CNA, state and local law enforcement agencies, and researchers. It is designed to assist agencies with identifying innovative and evidence-based solutions to effectively and efficiently tackle chronic crime problems in their jurisdictions. As always, please feel free to share your thoughts and experiences with us at SPI@cna.org.

Improving Criminal Justice Risk-Prediction: The Value of Machine-Learning Models

By James R. “Chip” Coldren, Jr. (SPI Project Director)

Richard Berk, Professor of Criminology and Statistics at the University of Pennsylvania, has developed some interesting statistical approaches (largely based on machine learning) to the prediction of criminal behavior. In a recent report,¹ he and his colleague Justin Bleich explain how these methods outperform traditional regression-based prediction models, and describe the policy implications of using this new methodology.

Thanks to BJA, Dr. Berk will offer several workshops through SPI in 2015 and 2016, so that Smart Policing sites have the opportunity to learn about his prediction models and consider adopting them. This article introduces the concept of machine learning and, drawing from Berk and Bleich’s 2013 article, explains how machine learning methods improve predictive accuracy.

“Machine learning” refers to the ability of a computer program to learn from its computations and improve its own performance. In contrast to regression-based prediction models, in which the predictor variables are pre-determined and used to predict outcomes (like parole failures), machine-learning models build their rules from raw data and have the ability to improve their accuracy as new data are fed into the model.

Berk explains that traditional regression models often omit variables that have low predictive power, using a relatively small number of variables. Machine-learning models, on the other hand, can easily include a number of variables with low predictive power, thus providing greater accuracy when taken together.

In some cases (e.g., when the predicted outcome is simple, such as failure v. success on parole), regression models can perform as well as machine-learning models. However, when the outcomes are more complex (e.g., re-arrest for a violent crime, re-arrest for

a non-violent crime, and no re-arrest), and when the data for specific predictor variables are not available (or complete), machine-learning models outperform regression-based models. Berk adds that machine-learning models can detect non-linear relationships, as well as complex interaction effects.

Berk also explains that not all outcomes carry equal weights. For example, a parole failure for a violent crime is more serious than a parole failure for a minor property crime. Also, false-positive prediction (e.g., predicting parole failure for someone who does not fail on parole) is more serious than a false-negative (e.g., predicting success for a parolee who fails and commits a new crime). Machine-learning models are better able to account for such differential weights in prediction errors.

Berk & Bleich’s 2013 article presents a fair comparison of regression-based models to machine-learning models and demonstrates the superior performance of the latter. For example, in one comparison, a logistic-regression model produced 44 percent errors for parole failures that were misclassified as successes (false positives), and 32 percent errors for predicted parole successes that ended up as failures (false negatives). In contrast, the machine-learning model produced 37 percent false positives and 28 percent false negatives, an improvement in prediction of about 16 percent and 13 percent, respectively.

We suggest that readers interested in learning more about the machine-learning approach to predicting criminal behavior review Berk and Bleich’s 2013 article, and review a recent National Institute of Justice “Update” report,² both of which are available on the SPI website in the [Resources section](#).

SPI will soon announce the first of Professor Berk’s workshops on machine learning, planned for summer/fall 2015. Berk advises that participants in his workshops have a statistical background and have access to the “R” programming language. We will provide more information on the goals of his workshop and the recommended participants when the workshop is announced.

¹ Berk, R. & Bleich, J. (2013). *Statistical Procedures for Forecasting Criminal Behavior: A Comparative Assessment*. University of Pennsylvania.

² Ritter, N. (2012). *New Tool Will Manage Community Corrections...and Beyond*. NIJ Update, National Institute of Justice.

SPI Case Study: Kansas City, Missouri

Reducing Violent Crime through Social Network Analysis of Offenders



By Kenneth Novak (Kansas City SPI Research Partner) and Vivian Elliott (SPI Project Manager)

Project Focus

For years, Kansas City, MO suffered from unusually high and persistent violent crime rates, with more than 100 murders and 3,400 aggravated assaults on average annually. In comparison to the rest of the country, Kansas City's homicide rate is approximately five times the national average. Furthermore, evidence shows that a disproportionate number of murders (47 percent) occur within a relatively small geographic area, representing only 4 percent of the city. To target this chronic problem of violence, in 2013, Kansas City implemented a focused-deterrence approach as part of its Bureau of Justice Assistance (BJA) Smart Policing Initiative (SPI), called Kansas City No Violence Alliance (KC NoVA).

Objectives

The primary objective of KC NoVA is to reduce homicides and gun-related violence in Kansas City using the following evidence-based strategies:

1. Identification (and re-identification) of violent offender groups (social networks); and
2. Collaborative focused-deterrence interventions to influence people within social networks.

KC NoVA is a multi-agency initiative that includes the Kansas City Police Department, Jackson County Prosecutor's Office, U.S. Attorney (Western District-MO), Missouri Probation and Parole, federal law enforcement, University of Missouri-Kansas City, Kansas City Crime Commission, and local social service agencies (e.g., Greater Kansas City Local Initiatives Support Group).

Implementation

Focused deterrence is "smart" in that its effectiveness is connected to efficiency (in this case, one must identify the offenders—or "audience"—who will be most

affected). For KC NoVA, individuals are considered as social networks of people at risk of committing or being victims of gun-related violence. The rationale lies with the fact that small numbers of chronically violent individuals (around 900 people) operating within defined social groups (55–60 groups) account for a disproportionate amount of Kansas City's violence.

The KC NoVA team, with the help of their research partners from the University of Missouri-Kansas City, has employed social network analysis to identify individuals involved in social deviance and depict connections between these individuals. Offenders are identified using existing police records (particularly field interrogation and co-arrests) and by gathering intelligence from street-level officers and detectives.

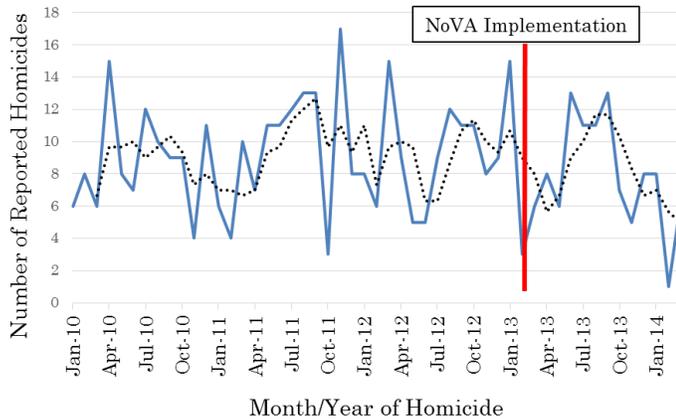
Using this data and information, the KC NoVA team's focused-deterrence message centers on not tolerating violence, the consequences of violence, and provision of social service opportunities for offenders open to assistance (e.g., education, job training, substance abuse training). KC NoVA uses call-in meetings to communicate these messages to identified offenders and groups. KC NoVA's first meeting occurred in April 2013 and, since then, it has held around a dozen meetings, averaging 40–50 offenders at each meeting.

Outcomes

As part of the SPI project, research partners Drs. Kenneth Novak and Andrew Fox will conduct an evaluation of KC NoVA to determine its impact on homicides and gun-related crime. They have analyzed monthly data for the 36 months prior to full implementation and data for 11 months post-implementation. Analysis revealed that homicides were reduced by 26.5 percent, and aggravated assaults involving a gun were reduced by 5.8 percent (comparing average monthly crime counts pre- and post-intervention).

Though gun-related aggravated assaults declined modestly in the expected direction, this reduction was not statistically significant. At the same time, aggravated assaults where no gun was used increased by 16.8 percent, representing a statistically significant increase. This observation may best be understood as functionally displaced crime; aggravated assaults did

not decline, but guns were less likely to be used during the commission of the crime.



Kansas City SPI homicide analysis

They will conduct further examination of violence and victimization among “networked individuals” to determine whether strategies had impact. In addition, the research partners will conduct a process evaluation regarding the level of internal buy-in, internal validity, and program fidelity. The data will come from secondary sources (e.g., offense and official reported crimes), as well as interviews, surveys, and observations of key personnel in the department.

Lessons Learned

Stakeholders describe KC NoVA, focused deterrence, and the deliberate multi-agency coordination as a *new way of doing business* in Kansas City, and equated it to mission shifts within their organizations. The corollary to this is that organizational change is challenging, time-consuming, and often resisted. In 2013, as KC NoVA was becoming operational, there was still significant need for building focused-deterrence capacity within participating agencies and, subsequently, there were missed opportunities for full implementation of the focused-deterrence approach (perhaps, in part, because some of the core elements and assumptions of focused deterrence were foreign or unnatural to many involved). When coupled with resistance by others across the organizations responsible for implementing KC NoVA, this made for a challenging year in 2013.

However, toward the end of the year—and thanks in part to additional training and technical assistance from external agencies experienced with focused deterrence, as well as important changes in organizational structure across functions within the Kansas City Police Department—the city saw positive impacts from the focused-deterrence strategy, with homicide numbers lower than they have been in decades.

Recent and Upcoming SPI Activities

- Brooklyn Park, MN SPI – Dr. Chip Coldren, Dr. Craig Uchida, and Ms. Shellie Solomon conducted a technical assistance visit to Brooklyn Park SPI on December 9–10, 2014 to assist the site with planning for the project evaluation/analysis, collective efficacy operations, and collective efficacy training.
- Michigan SPI – SPI team members James “CHIPS” Stewart and Dr. Chip Coldren and BJA representative Kate McNamee conducted a site visit with the Michigan State Police SPI to discuss implementation and evaluation approaches to integrating evidence-based policing in the department.
- Evaluation Assistance – CNA assisted East Palo Alto, CA SPI and Pharr, TX SPI in structuring the final evaluations of their SPI projects.
- New Site Outreach – CNA and SPI subject matter experts began outreach to four new SPI sites for FY 15 (Henderson, NV; Miami, FL; Portland, OR; and Toledo, OH). Efforts focused on orienting the new sites to SPI and Smart Policing principles, as well as assisting them with development and review of their Action Plans.
- Presidential Task Force – On January 31, 2015, Dr. Michael White, Professor at Arizona State University and Senior Subject Matter Expert for SPI, testified before the Presidential Task Force on 21st Century Policing. His testimony focused on pressing research needs regarding police officer body-worn cameras. More information, including a written copy of Dr. White’s testimony, is available here:

<http://www.cops.usdoj.gov/Default.asp?Item=2768>.

Recent SPI Webinars

SPI presented three webinars this winter:

- **Body-Worn Cameras**, featuring Commander Michael Kurtenbach and research partners Chuck Katz and David Choate from the Phoenix SPI project
- **SPI & the UK Model**, facilitated by SPI Subject Matter Expert Julie Wartell, and featuring presentations from SPI sites in Boston, MA; Chula Vista, CA; Columbia, SC; and Philadelphia, PA
- **Basics of Evaluation for Practitioners**, presented by SPI Subject Matter Expert Natalie Kroovand Hipple

Slides and video recordings for these webinars are now available on the SPI website:

<http://www.smartpolicinginitiative.com/tta/webinars>

To receive invitations to future webinars, please join our mailing list by visiting the SPI website or emailing us at SPI@cna.org.

Connecting Police and Communities

By Jessica Herbert (Founder of IDEA Analytics, Adjunct Professor at George Mason University, and former officer with the Fairfax County, Virginia Police Department)



“How do police connect with communities?”

Police agencies are asking this question across the nation, trying to repair and rebuild relationships. For police, building relationships with communities of color can be particularly challenging, due to conflicting perceptions and experiences. In my career as a police officer, the Vietnamese community would not call police for assistance, even when a member of the community was murdered. This lack of cooperation was frustrating. When officers let these frustrations show, it reaffirmed the community’s belief that the officers were not there to help, and would further isolate people with information that could help solve crime.

Too often today, street-level officers go from call to call and feel they do not have time to engage with community members. In areas with higher rates of police interaction, one negative experience can have resounding effects throughout the community and for years to come. And how an officer interacts with community members during routine incidents such as traffic stops or an arrest is significant in shaping the community’s perception of the department. Officers that maintain professionalism, show compassion, and attempt to understand people’s circumstances can prevent negative perceptions of the police. It is important for all officers—not just those assigned to community relations—to understand that every interaction with a citizen is an opportunity to build relationships.



Philadelphia Police Department officers engage with the community during foot patrol.

Key Principles for Building Positive Relationships

The first principle is to **communicate openly** and, most importantly, to **listen**. Creating opportunities to listen to community members allows police to gain understanding, perspective, and ideas on what will work to improve crime-prevention strategies or community safety. For example, an officer may talk to a group of youth from his or her cruiser, asking how the school day was, thinking they are reaching out and being friendly. However, the youth may perceive this as rude since they are being yelled at from a cruiser, or believe that the officer is lazy. This misperception can easily be corrected, but only if there is the opportunity to connect and communicate.

Below are tenets of effective communication:

- Respect each other every time we speak, even if we disagree.
- Listen to each other.
- Be honest, even if it is hard.
- Openly share our experiences and accept them— not discredit, dismiss, or discount them.
- Brainstorm; share resources; and contribute our time, passion, and drive to make a change in the community.
- Acknowledge our challenges and work together to overcome them.

The second principle is to **acknowledge a need to repair relationships**. “Repair” implicitly means that relationships are broken. Often, if we find they are broken, it is not because of one person, one incident, one stereotype, or one negative experience; every person involved has contributed, even unknowingly, to the issue(s) that caused the break and have let their own stereotypes, biases, or negative experiences prevent them from approaching the relationship with an open mind. When talking with community members, officers should acknowledge past hesitations and actions that may have contributed to the issue, as well as their willingness to move forward. If community members share the experiences that have contributed to misperceptions of officers and the department, do not take it personally; just accept their experiences for what they are. There should not be any expectation of apologies for past actions, only a willingness to move forward and rebuild connections within the community.

Lastly, **build bridges** between police and the community. Do not use language like “us versus them,” when we are all living and working in the same community—the expression should be “we.” No matter the role, we are all working toward the same thing—to live peacefully, equally, and safely. We just contribute differently. No one *wants* to live in fear of his or her safety, have illicit activities on their street, or disorder in their local parks.

These principles can be applied in *every* community, no matter the composition of the population. They will help police start the conversation with community

members, build positive relationships, and begin to facilitate social cohesion in the community.



The Palm Beach County Sheriff's Office engages with English for Speakers of Other Languages students as part of their community outreach program.

Departments focused on implementing Smart Policing principles should focus on relationship-building and can start by engaging anchor institutions and existing community organizations to act as force multipliers in this effort. This will allow police to increase positive interactions and assist community members in taking ownership of safety issues and crime strategies. By giving citizens a voice in the process, departments are empowering both the community and their officers, and the negative cycle can change.

Smart Strategies for Building Relationships in a Community:

- Leverage schools, churches, recreation centers and nonprofit organizations as “community anchors” to provide opportunities to interact and openly communicate with community members.
- Facilitate and encourage collaborative projects sponsored by community groups (e.g., community-appreciation events, movies in the park, youth athletic leagues) that bring people together around a common interest.
- Engage with residents during job fairs, career days, and open-house events to increase awareness about police strategies and community roles in crime prevention.



An example of one of Indio, CA Police Department's community events, developed as part of their SPI.

- Support and promote community events and achievements through media announcements.
- Recognize the passion and integrity of business owners, informal leaders, and mentors with Police Appreciation awards or other tokens of thanks.
- Acknowledge and reward officers that promote positive interactions and community relationships, and replicate this to be part of the organizational culture.

SPI Presentations at ACJS

From March 3–7, representatives from SPI, BJA, and CNA attended the Academy of Criminal Justice Sciences annual conference and presented on SPI site progress, overarching trends in SPI, and overcoming challenges in SPI programs.

More information about the presentations, including descriptions of the sessions, will be included in our Spring Newsletter.



- Incorporate methods to capture and measure positive police interactions, such as Compliment-a-Cop or Reward-a-Cop campaigns.
- Include crisis-management communications and professional standards throughout training programs to increase consistency in the organization.

SPI Presents at the American Society of Criminology 2014 Annual Meeting



Top row: Sarah Lawrence (East Palo Alto); Robert Nash Parker (Indio); ASC Program Cover; Zachary Hays (Pullman); Commander Kurtenbach (Phoenix) and audience
Bottom row: SPI Panel on Reducing Gun Violence; SPI Project Director Chip Coldren; SPI Roundtable on Overcoming Challenges; Greg Collins (Shawnee)

THE READER'S CORNER – SMART POLICING AND FEAR OF CRIME

By Gary Cordner (SPI Subject Matter Expert)

Police agencies have a tendency to employ tunnel vision. Despite the fact that policing has a broad, multifaceted mission, we often get locked onto the crisis *du jour* and forget about other important goals and priorities. For example, reducing crime has dominated police attention for most of the last decade or so; consequently, when we think about analytics or metrics, we only think of crime. Right now, we're shifting our focus to police legitimacy and controlling police use of force and, once again, we risk forgetting about everything else.



Moore and Braga usefully described seven dimensions of the bottom-line of policing.³ Collectively, these represent what the public expects its police to try to accomplish. Of course, at any point in time, some dimensions may deserve or demand higher priority than others. Similarly, in any particular jurisdiction or neighborhood, some may require more emphasis than others. But they all matter, and police agencies ignore any of them at their peril. The seven dimensions are as follows:

- Reduce crime and victimization.
- Hold offenders accountable.
- Ensure safety and civility in public spaces.
- Reduce fear and enhance personal security.
- Enhance public satisfaction and police legitimacy.
- Use force and authority fairly, efficiently, and effectively.
- Use financial resources fairly, efficiently, and effectively.

Smart Policing should extend its focus to incorporate the use of data, analysis, and evidence-based practices in furtherance of all of these dimensions of policing. A good case in point is reducing fear of crime. This ought to have been high on the police agenda for the last 20 years, since crime has been going down, yet fear of crime has not always followed suit. Why does that matter? Fear of crime—not the actual amount of crime—is more-often the reason why people put their homes up for sale, why businesses abandon one location for another, and why politicians win and lose elections. Fear of crime drives neighborhood decline and dramatically affects where people go to shop, work, and play.⁴

So, why is there so little Smart Policing to reduce fear of crime? There are probably two main reasons: (1) the flawed assumption that simply reducing crime will reduce fear of crime; and (2) lack of data. Police departments routinely generate a lot of crime and workload data, making it easy to take a Smart Policing approach to reducing crime. But fear of crime data aren't available in a police RMS or CAD system. However, we've had examples of data-driven, problem-oriented policing focused on fear of crime going back 30 years in Baltimore County⁵ and, more recently, in Duluth.⁶ Reducing fear can be accomplished once we recognize it as an important dimension of police performance, and reduction of fear of crime ought to be part of policing strategies whenever the data show that fear is out of alignment with the actual level of crime, or that fear is disproportionately concentrated at certain locations or among certain segments of the population.⁷

³ Moore, M. and Braga, A. (2003). "The Bottom Line of Policing." Washington, DC: Police Executive Research Forum. Online at http://www.policeforum.org/upload/BottomLineofPolicing_576683258_1229200520031.pdf.

⁴ Skogan, W. G. (1990). *Disorder and Decline: Crime and the Spiral of Decay in American Neighborhoods*. New York: The Free Press.

⁵ Taft, P. (1986). *Fighting Fear: The Baltimore County C.O.P.E. Project*. Washington, DC: Police Executive Research Forum.

⁶ Ramsay, G. (2014). "Surveys and Policing in Duluth." *Chief's Blog* (October 18). Online at <http://squadone.blogspot.com/2014/10/surveys-and-policing-in-duluth.html>.

⁷ Cordner, Gary. 2010. *Reducing Fear of Crime: Strategies for Police*. Washington, DC: Office of Community Oriented Policing Strategies. Online at <http://www.popcenter.org/library/reading/PDFs/ReducingFearGuide.pdf>.