Computer model anticipates crime hot spots

November 4 2013, by Bettye Miller

New truancy interventions are helping to reduce thefts in Indio after a UCR sociologist developed a computer model that predicts where burglaries are likely to occur.

(Phys.org) —A unique collaboration between a University of California, Riverside sociologist and the Indio Police Department has produced a computer model that predicts, by census block group, where burglaries are likely to occur.

Using the model, the Indio department has developed interventions to address the problem, and can better anticipate hot spots of criminal activity and deploy officers accordingly. The result is an 8 percent decline in thefts in the first nine months of 2013.

The collaboration between Robert Nash Parker, professor of sociology and senior researcher at UCR's Presley Center for Crime and Justice Studies, and Indio police is unusual, but it is the direction law enforcement is heading, said Indio Police Chief Richard P. Twiss.

"This is the wave of the future," he said. "It is my hope this relationship with Dr. Parker will continue throughout my tenure with this department, not only on this project, but with others as well."

Parker and Twiss presented the computer model at the International Association of Chiefs of Police Conference in Philadelphia in October. The project was funded with a four-year, $210,617 grant from the federal Bureau of Justice Assistance (BJA) Smart Policing Initiative, which supports innovative efforts by police agencies to solve serious crime problems in their communities.

"Professor Parker's research really goes to the heart of the Presley Center's mission, which is to conduct and apply top-notch research in the criminal justice system in a way that can protect the public and reduce crime," said Steven E. Clark, director of the Presley Center.

Parker began working with the Indio Police Department in 2010 to determine if a computer model could predict by census block group—the smallest geographic unit the Census Bureau uses—where burglaries were most likely to occur.

"Thefts overall had been rising, and I was concerned that we were on a course to exceed last year," Twiss said.

Using crime data and truancy records—truants account for a significant number of daytime burglaries—Parker discovered patterns of crime over time and space. Most computer models account for changes over time or a variety of places, but not both.

"This is still cutting-edge and experimental," Parker explained. "Big data gives you statistical power to make these kinds of predictions. It makes it possible for us to anticipate crime patterns, especially hot spots of crime, which allows law enforcement agencies to engage in targeted prevention activities that could disrupt the cause of crime before the crime happens."

Parker and Indio police reviewed 10 years of data and discovered that as truancy arrests shifted geographically in the city, burglaries appeared to follow one or two years later. As the sociologist dug deeper into the data he identified individual students whom school officials had mailed more than 100 letters about their absences.

"We assumed there was a correlation between daytime burglaries and truancy," Twiss said. "When you actually have the data that shows it, then you can evaluate the processes, and the breakdowns in the processes."

Police launched several outreach programs as a result, including a burglary and truancy prevention task force, community safety fairs and meetings, media campaigns, and stronger partnership efforts with local business owners and others.

Confirmation of the truancy-burglary connection prompted the department to train staff members to teach Parent Project classes. The nationally known program is designed for parents raising difficult or out-of-control adolescents. Although it is too soon to measure the impact of the program, which Indio police began in October, anecdotal reports are promising, Twiss said.

For example, a single mother whose son was habitually truant had attended only three parenting classes when she asked for help. A school resource officer met with her son in their home the next day to

determine the reason for his absences and counseled him about the direction his life could take if he did not stay in school.

"That day he asked his mom to take him to re-enroll in school," the chief said. "That's a direct result of this program. She felt comfortable that we weren't going to have an arrest-and-book mentality."

Twiss said police do enforce daytime curfew violations, and he also hopes to revive a youth court program where trained teens would hear these cases.

"We are deploying people differently and doing more community outreach," he said of the impact of the collaboration with Parker. "We discuss in briefing those areas that are being impacted. We had our crime analyst put maps together a few months ago based on trends we were seeing and we did pro-active patrols in those areas. Instead of having to respond to past crimes our arrests went up and instances of theft were reduced. We want to produce real-time, weekly hotspot maps that will predict patterns and trends. That's the direction we're heading."

Through the Smart Policing Initiative police are reaching adolescents before they enter the criminal justice system. "I am a huge supporter of smart policing and this BJA program," Twiss said.

Provided by University of California - Riverside

Citation: Computer model anticipates crime hot spots (2013, November 4) retrieved 20 June 2024 from https://phys.org/news/2013-11-crime-hot.html