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Can new Mesa police tool prevent crime from happening?

Maria Polletta, The Republic | azcentral.com Published 7:18 a.m. MT Oct. 21, 2016 | Updated 9:13 a.m. MT Oct. 21, 2016

City officials have called predictive policing "one of the best practices recommended for (police) departments to consider." But verifying its effectiveness hasn't been easy.



(Photo: Mark Henle / The Republic)

Mesa soon will implement state-of-the-art, crime-predicting software officials say could help police stop burglaries, drug deals and other crimes before they happen.

PredPol, short for "predictive policing," uses an algorithm to evaluate a city's historical crime data and generate 500-by-500-square-foot "hot spots" indicating where and when crime likely will occur each day. Officers patrol those areas between calls for service.

Officials with PredPol have reported double-digit declines in robberies, burglaries and overall crime following the software's adoption in other cities. Mesa — which saw dips in every type of crime except homicides from

2014 to 2015 — wants to build on that momentum and believes "no other vendors ... can provide a tool with PredPol's predictive-policing and mission-planning capabilities."

Mesa will spend \$170,000 to use the software for three years, becoming the first city in the state to pilot the program.

But some industry experts question the software's effectiveness, and company executives have acknowledged the difficulty of decisively proving its performance.

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Can new Mesa police tool prevent crime from happening?

"It's always tricky to point at any one particular thing and say, 'This is why crime has gone down,'" PredPol CEO Brian MacDonald said. "But the correlation between using our product and dropping crime has been very strong."

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Crime analyst Jackie Pennacchio works on her computer, Oct. 20, 2016, at Mesa Police Department. Mesa will implement crime-predicting software officials say could help police stop burglaries, drug deals and other crimes before they happen. (Photo: Mark Henle / The Republic)

Police across the country have used data to isolate and react to crime trends since the mid-1990s, when New York City's Police Department developed the crime-reduction and management tool CompStat.

While less than 40 percent of agencies surveyed by the Police Executive Research Forum had tried to predict future crimes by 2012, 70 percent said they wanted to initiate or step up predictive-policing efforts, creating a market ripe for PredPol's launch that same year.

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A Southern California team of mathematicians, police scientists, crime analysts and officers had spent six years developing the program, now in use at about 60 police departments throughout the state.

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"Using PredPol's technology, analysts spend less time making crime maps and more time conducting the analysis and intelligence work for which they are trained," the company's website says. "Newer officers are brought up to speed on the information, and veteran officers are given additional insight into the data they're using."

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The tool does not replace the "insights of veteran officers and crime analysts," according to MacDonald, since the product doesn't tell officers what to do once they visit a hot spot.

"If (officers) are looking for burglaries, they might get out and talk to some people in the neighborhood. If it's robberies, they might look at commercial lighting, talk to store owners," he said. "Or, they might stop and talk to parents at a Little League game and give them a card."

"At the end of the day, it's the officers making the decisions."

An ongoing debate

In August, a Mesa staff report asserted PredPol's hot-spot-generation tool would "support the city's efforts to suppress, deter and reduce crime."

The department still is working to determine when it will begin using the software; how many officers it will train to use it; and what, if any, any tools or strategies it will use to measure PredPol's effectiveness, police spokesman Nik Rasheta said.

The national debate regarding how to analyze PredPol's performance also continues, for at least three reasons.

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First, PredPol's algorithm is proprietary, so it's difficult for anyone outside the company to fully evaluate the inner workings of the software.

Second, the program's success rate could vary depending on the type of crime police want to predict. Victims of crimes involving gang activity, for instance, don't report them as consistently as victims of car thefts or burglaries, and less data makes for less reliable predictions.

Last, crime rates fluctuate naturally and have generally declined in recent years, leading statisticians to deem simple "before-and-after" comparisons incomplete.

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MacDonald, PredPol CEO, agreed isolating PredPol's effects "is a tough one."

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"There are probably dozens of different theories as to why crime has gone down -- everything from environmental factors to economic expansion and so on," he said.

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To more precisely gauge the program's worth, he said, PredPol participated in a randomized control trial that examined the software's performance in Los Angeles. Each day, patrol officers acted on hot-spot information from either PredPol or a crime analyst, without knowing which they'd received.

The study, peer-reviewed and published in the *Journal of the American Statistical Association* late last year, didn't reveal the dramatic, double-digit crime dips reported by some PredPol users.

But it did show an average drop of about 7 percent when officers employed PredPol.

Mesa Vice Mayor Dennis Kavanaugh, a longtime advocate of innovation and experimentation in public safety, called predictive policing "one of the best practices recommended for departments to consider," despite its potential limitations.

"There will always be the risk that other factors or events will trigger a reallocation of resources," he said. If PredPol is "used in conjunction with community policing and engagement and in understanding the root causes of crime and how to address those causes," it will be "worthwhile for us to add this to our law-enforcement toolbox."

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