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Law Enforcement

The Chicago PD's Top Tech Officer Is Betting on Sensors and Smartphones to Help Curb Shootings

“These tools are not replacing people,” says Deputy Chief Jonathan Lewin, “but they improve our capacity to do our job.”

By **Ann Givens** Jan 25, 2017





John J. Kim/Chicago Tribune/TNS via Getty Images

Drill down a layer, and the violent crime statistics that look bad for the city of Chicago begin to look even worse for its police department. As bullets find victims in numbers unseen in more than two decades, a vast share of shooters are going unapprehended.



After fielding 764 homicides in 2016 — a majority of them committed with guns — the Chicago police have so far made arrests in fewer than a quarter of those cases, according to a [report](#) released this month by the University of Chicago Crime Lab. Of the more than 2,700 cases in which someone was shot but not killed, only about 5 percent have led to a suspect in custody.

There are myriad ideas about how Chicago's police can turn the tide. One tool that police brass plan to increasingly lean on is advanced technology. The officer overseeing the push is Deputy Chief Jonathan Lewin, who heads up the department's initiatives in computer-assisted crime fighting.

The most dissected of those efforts is an algorithm known as the Strategic Subject Model, which uses arrest histories and information on past shootings to generate a list of Chicagoans most at risk of committing or becoming victims of violent crime, so that police officers can try to step in before shots are fired. Its implementation has been criticised by some who urge better training for field officers and commanders and better use of intervention strategies. Lewin says those changes are already in the works, and stresses that the model's purpose is to be proactive, not punitive.

Less attention has been given to the hardware side of the CPD's tech push. This month, under Lewin's direction, the department will significantly beef up a gunshot detection system called ShotSpotter in two of the city's most dangerous

districts — Englewood and Harrison — expanding from the three square miles cumulatively covered by the sensors to an area spanning 14 square miles. The department hopes to also increase the number of surveillance cameras in those districts from roughly 180 to 228.



Deputy Chief Jonathan Lewin

Information from the gunshot sensors and cameras will be matched in real time with data including 911 transcripts and arrest records to point officers more

quickly toward both bullet casings and witnesses, or even to suspects themselves. Eventually, the system may even do things like brighten street lights in the seconds after gunfire is detected. Police say that faster, more accurate responses can help their relationships in the community by letting residents know that officers will be there when shots are fired — a potential boon to the image of a department recently faulted by federal auditors for civil rights violations, poor training, and a lack of accountability.

As a boy growing up in Chicago, Lewin was torn between his fascination with computers and his desire to join the force. Now he hopes technology may play a part in helping his embattled department get back in its feet.

“No one thing is the answer,” he said, “and these tools are not replacing people.

“But together they improve our capacity to do our job, which is to reduce crime and save lives.”

Recently, Lewin sat down with The Trace to talk about his office’s high-stakes tech plans.

Let’s start with the Chicago police’s expanded use of ShotSpotter gunshot sensors. Can you explain how that will work?

Since summer of 2012, we’ve had ShotSpotter gunshot sensors in just two small areas of two police districts — the 7th District on the South Side, and the 11th District on the West Side. Those two districts accounted for 24 percent of homicides in the city last year. Now we’re going to expand ShotSpotter to the boundaries of those districts.

One thing we found is in Chicago about 20 percent of the time when a shot is fired, no one calls 911. So ShotSpotter gives you a complete picture of gunshots in those coverage areas.

It’s also alerting us more quickly. We found that when someone does call 911, we’re getting the ShotSpotter alert about five minutes faster than the call.

And then its providing much more accurate location information. It's using sensors to triangulate the gunshots to within about 20 to 25 yards. So it's much more accurate than when a person would call 911 and say "I think I'm hearing gunshots in the neighborhood of 1400 West Madison."

All this information creates a record that will feed into the computer model, and help us figure out where future gunshots are most likely to happen in the future. Because you don't just want to be responding to gunshots, you want to be identifying the causes of gun violence and trying to prevent it.

What metrics do you have on the smaller areas where you've already had ShotSpotter deployed?

We didn't do a great job of tracking direct connection between ShotSpotter and case clearances. I did find arrests where ShotSpotter was the initial notification — there are a number of them. But we're going to do a much better job now that we're expanding of measuring impact and tracking efficacy.

In the expanded area, there's going to be a new protocol that's going to require a much more rigorous response. There will be a more thorough search for crime scenes and better canvassing.

There's also going to be some better integration of advanced crime analytics tools, like one that matches characteristics of shell casings and can tie them to multiple cases. That is only possible when you have a better way of identifying crime scenes which leads to better evidence recovery.

Even if the officers respond and don't find an offender, and don't find a victim, you still have a gunshot event that occurred. So it's going to require the same amount of rigor you would apply to a situation where you do find an offender or a victim.

When criminals realize that there is a great likelihood that the police are going to respond much more quickly and with much more accurate location information, and that they are going to conduct follow-ups in a much more thorough way, hopefully that will change their behavior.

Will you need more people on the ground to do all that work?

No, I don't think you do. I think it's a matter of better using the people you already have.

How are you preparing officers to make the best use of these new tools?

The technology is one thing, but we need to ensure that it's socialized properly throughout the organization and there's some accountability.

We've done very, very extensive training in the 7th and 11th districts. We've visited all three watches, people have come to headquarters for training, we've had people come to the academy for training. Now the officers see that there's an investment in some new technology that ties to what already exists. We're also going to do focus group, and get feedback from the users. I think there's some momentum building.

How do the surveillance cameras fit in?

So those two districts already had a lot of cameras, but we're adding even more.

You might use the cameras to look for a backpack left on the street that could potentially be something suspicious. You can also use them to look at patterns of behavior. Like if a car is double parked and not moving for a certain length of time, that could be a sign of an illegal narcotics transaction.

With ShotSpotter, when gunfire is detected, the platform immediately is going to bring up any cameras with a 300-foot radius. Then the system is going to pull in other information that may be relevant. It will show information about any calls to 911. It's going to show recent crime and recent gang activity in that area in case any of that activity could be related to the gunfire that was just detected. It's going to show wanted people, who maybe their last known address was in that area. It's going to show wanted vehicles through license plate recognition cameras in that area.

Imagine this scenario: ShotSpotter detects an gunshot and sends an alert. The cameras are backed up, so the officer can actually view footage of the gunshot

event. Let's say there's also been a report of a stolen vehicle in the area and he can see that vehicle drive away. Now that officer can put out an immediate alert on the voice radio so other units can react and the car can be immediately identified.

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So all this information is fed into a computer in police vehicles?

It'll be deployed three different ways. One will be a computer in the vehicle. That's the mobile data terminal that patrol officers have access to today where they can access mapping, do a name check, etcetera. But it will expand the capabilities of those devices.

The second way is smart phones, so it will literally put the information in the hands of officers. Not all officers have smartphones now, but we hope they will in

the future.

Each district will also have a 24-7 situation room where what we're calling a district intelligence officer will work with a civilian analyst to look through all these different data sources and really make sense of them. They'll help deploy officers to the places where they're needed most.

This is a pilot. If it works in the 7th and 11th District, is there a commitment to expanding in the future?

I'm not going to say commitment, because I don't know if that is a for sure thing or not. It is safe to say that if there is a positive impact in these two districts, I personally believe you will see it replicated in other places. I believe this will become a template for other places in the city and the country.

You've mentioned how some of these technologies not only have the potential to facilitate arrests, but could help the department intervene before crimes occur. Can you talk a little more about that?

We look at a range of indicators that can be precursors to future violence. You might be looking at historical crime patterns, you might be looking at things like weather, we could be looking at things like calls of street lights out.

So the platform will help identify and alert to those conditions that might lead to crime, and help you solve those problems before the crimes occur.

Let's say the model identifies that there's a pattern of crime that's happening around closing time for a certain bar, and that bar also has a number of noise complaints from citizens. Maybe all those things together indicate that that bar shouldn't have what we call here a late license. It should have to close earlier.

The platform could also influence policing decisions, like where you're placing your police.

That means both, "at 3 p.m. today I'm going to send a car here," and larger decisions about where to allocate resources.

And the Strategic Subject Model basically takes that predictive approach and applies it to people?

The Strategic Subject Model is a risk model that helps us protect people that are most at risk for being shot or for shooting someone themselves. It's not magic, it's not a crystal ball. It's the computer going through tons of data. It's asking things like, "Have you yourself been shot before?" Because that increases your risk for being shot again. How many gun crimes have you been arrested for? Is your criminal activity increasing or decreasing?

It's nothing else. It's nothing about race, nothing about gender, nothing about ethnicity. It's not even biased about where you live. It's just those objective measures, and with pretty good accuracy it can predict your risk of being involved in future violence.

It's not designed to be a punitive model, it's designed to save lives. The entire goal is to intervene in a way that reduces someone's likelihood of being involved in crime. We can make a visit to a person saying we want to get you out of the cycle of violence. We can offer you some things, but if you commit future crimes, you're going to be subject to penalties.

In addition to the intervention that you mentioned, are there any other ways that you're going to use that data?

Certainly if someone is at risk for shooting someone else and also has an active criminal warrant, then you have a criminal predicate to take enforcement action. But just the score itself does not provide any probable cause or even reasonable suspicion to take enforcement action.

How does the technology the police department uses today compare to when you first started?

(Laughs). I remember when I first started, I was in Rogers Park, 24th District on the North Side. I went up to the district desk and there was somebody using preschool scissors – you know like the big scissors with the plastic handles – and paste. I think there were even maybe some crayons. They were pasting things into

a leather bound book. This was in 1991, so we're not talking like the Middle Ages here. And they said, "This is our CO book." It was the book they used for roll call briefings.

You're just amazed when you look back, and when you also see the potential in the technology now. It's an exciting time.

How much do you think Chicagoans can expect this new technology to reduce bloodshed?

I think it's impossible to quantify exactly to what extent, just because there are so many things that are involved in making this work. But this is going to play a key role, along with the community, along with the schools, along with religious institutions, along with police officers. Technology is one of the components of trying to save lives.

This conversation has been edited for length and clarity.

Correction: An earlier version of this article misstated the number of homicides recorded in Chicago in 2016.

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Ann Givens is the public safety editor at WNYC/Gothamist. She was previously a staff writer at The Trace, where she covered domestic violence, suicide, and solutions to gun violence.

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