Good afternoon everyone. We are going to go ahead and get started. First, I'll introduce myself. My name is Erin Farley, and I am one of JRSA's research associates. For those of you who may be less familiar with JRSA, it stands for Justice Research and Statistics Association. We are a national non-profit organization dedicated to the use of research and analysis to inform criminal and juvenile justice decision making. We are comprised of a network of researchers and practitioners which at the core include directors and staff from state statistical analysis centers.

Before I welcome our presenter, I just wanted to let attendees know that we do have another webinar scheduled, and that is for February 22. And that is titled Contemporary Issues in Risk Assessment, and will be led by Kevin Baldwin from Applied Research Services. So mark your calendars for that.

So with that, I would like to introduce Tracey. Dr. Tracy Rizzuto is an Associate Director of the School of Leadership and Human Resource Development at Louisiana State University. The overarching focus of her research program is on developing human capital and organizational capacity through technology-mediated processes, and has published in journals across multiple disciplines, including psychology, information systems, sociology education, and she has also been featured in popular media outlets like the New York Times, National Public Radio's Marketplace, and the Chicago Tribune. So, welcome Tracey.

And before we go any further, I first wanted to thank our partners at the Bureau of Justice Statistics for helping to make this webinar possible. And I would also like to go through a few logistical points. So we will be recording today's session for future playback, and the link to the recording will be posted on JRSA's website. It's usually posted the following day. Today's webinar is being audiocast via both the speakers on your computer and the teleconference. We recommend that you listen to the webinar using your computer speakers or headphones. To access the audio conference, select Audio from the top menu bar and then select Audio Conference. Once this window appears, you can view the teleconference call-in information or join the audio conference via your computer. So many of you, it may have just automatically popped up when you logged in to the system.

If you have any questions for the presenter or would like the communicate, please submit all your questions to the presenter, panelist, and host. So here you can see in this little picture that you have a variety of options. You could do all three, or you can do all participants. So what just makes it easier is if you just send the question out to everybody, so that's what I would recommend that you do if you have a question. And then we will try and keep track of those as we go through the presentation today.

And then, we would also ask you to help us in counting how many people attend our webinars. So we do have people who watch the webinars as a group. But when we look at our counts, it just shows up as one single person. So if you
do have a group of people watching from the same computer, what we would appreciate you doing is to sort of write in the name of the person who's registered, and just how many people are in the room with you. So for example, Michelle Smith, 5. And that just really helps us track the numbers of people who attend our webinars.

Erin Farley: So this webinar is scheduled for approximately one hour. If you have any technical difficulties or get disconnected during the session, you can reconnect to the session using the same link that you used to join initially. And you can also email Jason Trask at jtrask@jrsa.org. And in the last five minutes of today's webinar we will ask you to complete a short survey, and this information that you will provide will help us to plan and improve future webinars, and help us meet our reporting requirements. So we would greatly appreciate that.

Erin Farley: So without delay, I will turn it over to Tracey, so let me just make sure I grab the magic ball and drop it next to you, and then you should have all the power. Okay.

Tracey Rizzuto: Thank you, Erin.

Erin Farley: You're welcome.

Tracey Rizzuto: And I want to give thanks to Justice Research and Statistics Association for this invitation today, and all of you for joining this afternoon. So as Erin mentioned, my name is Tracey Rizzuto. I'm an Industrial Organizational Psychologist at Louisiana State University, and I've had the privilege over the last five years or so to be able to apply my expertise in social network analysis to aid the local law enforcement and district attorney's offices at Baton Rouge Parish in their crime reduction strategies and focused deterrence initiative.

Tracey Rizzuto: So what I want to do today is provide an overview of some of what I've learned and am learning about how social network analysis can be used to support focused deterrence initiatives in particular. It's not meant to be a social network analysis statistical tutorial. There are wonderful references for that. But more to give you an idea of what the possibilities are and how you might be able to integrate this approach into what you're doing in your own cities.

Tracey Rizzuto: So although there is quite a bit of buzz about social network analysis that's recently occurring in the literature and law enforcement initiative circuits, this is not a new approach. It's been around for quite a while. And case in point of this, is what I've pulled here is an FBI record of Joseph Bonanno, the notorious New York mob boss from the 1950s. And this is his crime report, it's his police report. Repertoire of activity from the time. And what I want to draw your attention to is if you notice, here in red, is they have a list here of associates. Criminal associates he was known to have business with, collaborated conflict with, and this is the making of a social network approach. Is to look at the relationships of a given individual or group.
Tracey Rizzuto: In looking through the approach of how this information is used, there's a process of extracting, well who are the actors involved in a given group? Actors could be a key target, a particularly troublesome, violent person in the community. It could be a group with several members or associates involved. But by taking a list of criminal associates and displaying it in a graphic format, you can learn new things about the relationships and trends and patterns that are going on around the criminal behavior.

Tracey Rizzuto: And so when you're looking at a social network map, essentially you're looking at actors, the people who are involved, and how they are tied together. And so you have these ties and typically it's some kind of shared involvement in criminal activity. But one thing you want to note here is if you notice, I'm not making any kind of differentiation here about whether or not these criminal associates of Joe Bonanno are his co-offenders, his victims, and really from a research standpoint there's been quite a bit of work that shows, as research done by Andrew Papachristos, very well-regarded researcher in this area, said that simply having an associated tie directly, or even indirectly, having a relationship through someone else, already increases your risk of being involved in criminal violence. So in that sense, lots of social network maps are very basic portrayals of relationships and people.

Tracey Rizzuto: So the way that this typically worked back in the day is you had all these FBI files on record, and you had people who would pore through these paper files and then put them in folders and put them in file cabinets, and then an event would happen. You might have a murder that is reported or an assault that's reported. And what you do is you do your investigative techniques, you find names and locations, and maybe you have a seasoned person on the force that says, "Okay, I remember this name. I've seen this before."

Tracey Rizzuto: They go into the file. They pull it. And they start to formulate a case, a story about what happened. Who might be involved. From that they might dive back into that file cabinet again and pull more information. Or maybe if you're lucky you find a gun shell casing that might tip you off to a different case. And you pull that file as well. And through this formulation, you start to develop a process of creating a picture, a story.

Tracey Rizzuto: We use this process to be visually displayed on what's called a linkage map. So you're probably very familiar with this. And I want to differentiate linkage maps from social network maps. Because in the process I described, of diving into file cabinets and portraying, this is very useful for a descriptive analysis to share information. To kind of visualize the picture of what's happening in your crime story.

Tracey Rizzuto: But what social network maps allow you to do is a little bit different. These things are not the same. Social network brings a different type of value added. It can handle much more data, for one, so if you think about it, back in the day when you're working with paper and file cabinets, a lot of our process hasn't
changed that much. Maybe now those papers are archived as PDFs. Maybe now they're housed in electronic files.

Tracey Rizzuto: But what you're still doing is depending on the tacit knowledge or experienced knowledge of investigators to have that flicker of inspiration or that flicker of connection light. And say, "Wait, I remember this name," or, "Doesn't this group tend to run in that circle?" You're relying on people to draw the connection. And through that connection you then dive in and seek the information you're looking for. You could visually display it in this very informative linkage diagram.

Tracey Rizzuto: But this whole process is top down. This whole process is driven by the human cognitive capability of remembering these things, having that seasoned investigator and law enforcement agent who kind of knows the beat, knows the field. It's also dependent on having good archival records, to be able to go back and source. So you're somewhat limited in the cognitive capacity of people's memories and institutional information gathering.

Tracey Rizzuto: So where social network analysis has a benefit, is it takes a different approach. It takes a bottom-up approach. And so what I mean by that is what if, instead of relying on a handful of people to be able to make the linkage for you, what if you had comprehensive data sets. Data sets that comprised all of the criminal incidents that occurred in a city, and all of the known relationships that are shared among the actors that are involved in those incidents. By allowing statistical simulation, you can actually come to arrive at and extract information about the formation and structure of the criminal behavior occurring in a city.

Tracey Rizzuto: So what you are looking at, I kind of skimmed through really quickly, is about 30,000 criminal records. Each block indicates a person who was involved in a criminal incident, whether it was violent or narcotic in this case. The line would mean that people were connected to each other in that incident. When you're looking at 30,000 pieces of information, that's exceptionally difficult for any human brain to conceive. But when thrown into a computer simulation, it can find those relationships.

Tracey Rizzuto: And that's the power of social network analysis. It will extract those relationships, it will measure those relationships, and it will map those relationships. So that you can see different types of information than you could see before. And so what I want to stress here is that this is a bottom-up approach. That's not meant to replace the top-down traditional investigative approaches, it's simply a way to compensate for some of the shortcomings of memory and record-keeping. And meant to complement that top-down approach. When used with traditional top-down methods, using the bottom-up social network approach provides a more comprehensive understanding of the criminal behavior that you’re looking at.

Tracey Rizzuto: So another thing I want to stress about this is this is not a big data approach. So big data is also kind of a buzz word, very popular right now, which means you
pull together all sorts of various archival data bits about human behavior and you look for a connection. You find, where might a [inaudible 00:13:33] pattern in one city relate to the thermal temperature in another city, and you just put random things together to see what sticks. It's like throwing the spaghetti on the wall to see what sticks. And then you try to make a story out of it.

Tracey Rizzuto: That's not what's happening here with social network analysis. Social network analysis is guided by theory and principle. And should be guided by high-quality data standards. So I'll talk a little bit about that, because really you can only infer good quality information from your social network analysis if you have good quality data going into it. So I'll try to build that topic of data quality and data integrity into the talk as I go.

Tracey Rizzuto: So a little bit about my background and where I got started. I mentioned I've been working with Baton Rouge Parish for some years now. I came on board as a social network analyst initially to assist with a group analytic process at the time. We were interested in identifying juveniles involved in gun violence in our community, particularly those with group involvement. And so what I'll talk about is our focused deterrence approach and how I've been integrating these social network concepts along the way.

Tracey Rizzuto: So for background, you should be familiar with the term focused deterrence, but just to make sure we're all on the same footing here. Focused deterrence is based on this concept that if you can communicate and explain to people that the cost of crime is not worth it, that committing crime has so many penalties associated with it it simply is not worth it and the costs outweigh the benefits, you should be able to deter people from engaging [inaudible 00:15:22] behavior.

Tracey Rizzuto: And so you engage in that deterrence by what they call pulling levers. It's basically applying the positive incentives and the negative reinforcement so that hopefully over time you start to build a culture where people recognize that it's just not worth engaging in criminal behavior. Focused deterrence has four main strategies to it. First, something to recognize is it's not a crime strategy overall. The goal is not to solve all crime. The goal is to be very specific and targeted in your focus. So when a city implements a focused deterrence, what it does is it looks at, what is the primary issue of crime that we have in our city? Not all. What is the most important driving force of destruction in our city? In our case, we were interested in violent crime in particular. Gun related violent crime. So we're not trying to solve all crime, we're not trying to go after pickpocketers and pot smokers. We're trying to focus on the most violent offenders. And then the next step is to say, well who are those individuals who are engaged in those most violent crimes?

Tracey Rizzuto: The second aspect of focused deterrence is communication. So you want to communicate to those individuals that things are changing. That the community is taking a different approach and they're no longer going to tolerate the crime,
the criminal behavior and the violence. And so you communicate your strategy, that we have levers in place, and the crime must stop.

Tracey Rizzuto: The third aspect is you have to have levers in place. So those levers as I mentioned some of them are kind of the carrot and stick. Some are positive. You offer services and resources to hopefully catch people before they walk into the life of crime. Try to get them before they get so embedded it's hard to turn away. And then also offering the stick. The carrot and the stick. You have the sanctions that say, if we come to you and offer you these services and we try to help you walk away, you need to put down your gun. If you're engaging in this activity you're going to be faced with harsh penalties. So there's the lever approach.

Tracey Rizzuto: And ultimately you have to follow through with those levers. And that takes a team. So focused deterrence involves engaging, convening, inter-agency multi-sector teams.

Tracey Rizzuto: So where I find social network analysis to be most helpful are in these four areas. And what I'm gonna do is I'm gonna talk about how networks can be useful for each of those four strategies. But first, I want to address some basic terms in social network analysis. So I've already mentioned that in social network analysis you've got actors, the people involved in whatever it is you're looking at, and you've got ties.

Tracey Rizzuto: So let's say for example, I'm talking about advice. This might be my advice network. Who do I go to for information and advice? I go to these four people. Things to consider when you're looking at social network maps in this way, the key focus is the actors and the ties. It's not so much the placement of these circles. So the fact that my spouse is listed higher than my coworker doesn't mean my spouse gives better advice or more advice than my coworkers, though he might disagree, but it simply means that you have these actors and they are all important in this relationship.

Tracey Rizzuto: So with regard to actors, we have a couple of different types. We have egos, which are usually the focus of the network. And then you have alters, which are the people that they are affiliated with, or they have a relationship with of some sort. So in this picture, I have an affiliation with myself, I have friends, I have coworkers, I have supervisors, and I have a line that connects me to them, so therefore it means I have an interdependency. I have a relationship with them of some sort.

Tracey Rizzuto: Now the kind of interdependency or relationship that you talk about can vary. Sometimes, I just mentioned this could be an advice network. It could also be a financial network, people with whom I share money or give money to, or who give me money. It could also be a criminal network. Or people who share a common criminal incident. And so with regard to SNA in law enforcement typically we're looking at criminal incidents from criminal incident reports that
are already being maintained and archived in cities. So this archive of information is already assembled and put together for you. And it becomes a valuable source of linkage information. It says that based on a criminal incident report, all of these individuals were involved in this incident at a given place and time. So that that is the essence of that interdependency. Now we'll talk about quality and what you can infer from that in just a moment. But the criminal incident becomes the basis for drawing relationship assumptions.

Tracey Rizzuto: Social network analysis is simply a way of depicting that through analytics. So evaluating it, putting numbers to it. But also the graphic depiction. Because a picture says a thousand words.

Tracey Rizzuto: There are a couple different types of networks you might encounter. You'll hear people talk about whole networks or complete networks. This is when you have a defined population. And you know exactly who all the players are. You know what the extent of their relationships are. So we have the luxury, we can look back at Joe Bonanno's case and now that we have 60, 70 years behind us, we can look back and say, "We know who he associated with, who he committed crimes with," and we can draw linkages to say that, for example, Joe committed crimes with Lucky Luciano, had crimes committed with or against Francisco, and he had other sorts of relationships. Engaged with different people. So we kind of know who the players are, and we know the boundaries.

Tracey Rizzuto: But this kind of knowledge is pretty rare, to have this complete picture of what's going on. The benefit of it is not only can we portray what the actual relationships are known to be, but we can actually infer potential relationships. So if you notice, I have a dotted line between Joe and Giuseppe. Let's say through our records, historically, we were never able to tie Joe and Giuseppe together, but through statistical inference, there are models that help us understand where there are likely relationships. That's kind of a different way of looking at social networks. But this ability to look at potential ties is really only helpful in the whole network context, when you have all of this information available. Which is exceptionally rare in crime data. Usually you only have parts and pieces of the information. You might have to go through snowball sampling or interviewing to figure out what's going on with this story. Who was this person? How do we connect them? Having this kind of whole information inclusive population in historic record is typically not what [inaudible 00:22:24] dealing with on a daily basis.

Tracey Rizzuto: Typically what you're dealing with is what's called an ego network. So this tends to be more common. You might have, instead of trying to map the whole universe of a given crime community, what you're trying to do is you're trying to follow the case that involves an individual or a certain subset of individuals, and you're trying to get at understanding the relationships that those people had. And so for example, let's say we know John Calipari, we know he is a known drug dealer. And we're trying to understand his relationships in the community with other drug dealers and consumers. And so in this case, an example would
be an ego network that looks at John's ego, and his alters. The people he was known to be affiliated with. So this is an example where you have alters, we simply know he has relationships with these people. This is one kind of network that is useful.

Tracey Rizzuto: A second type is one that looks very similar, but now if you'll notice we actually have arrows that point, that infer directionality. So in this case, now it might be the same thing, we're looking at this narcotics ring, we know John was central, now we can actually depict flow of information or flow of goods, resources, and narcotics. For example, we can say based on these arrows that John was selling drugs to James, that John sold to Bob, and he also bought from Bob. And that John pretty much exclusively just bought from Larry. The arrow didn't go the other way. So through directed ties we're able to understand flow of resources, or the directionality of the relationship.

Tracey Rizzuto: A third type of ego network you might encounter and I'll talk about today is one where you now look at the ego as actually a group instead of a single individual. So let's say we want to understand something about a given group, like the Kings. The Kings, let's say, is a notorious criminal street gang and we want to understand a little bit more about its behavior. We can depict this and measure this in social network analysis by having the Kings and the criminal incidents they've been involved with, let's say over the past month or so. So we can get a sense of how many different events they've been engaged with.

Tracey Rizzuto: At a basic level, those three kinds of maps are the ones that you'll most commonly see in social network analysis. But what I want to do next is tie these basics to specific questions related to focused deterrence. So I mentioned that these are the strategies of focused deterrence. The structure for the next part of this talk is for each of these strategies I'm gonna outline what the need is for social network analysis, the method that can be used for tackling that need, and then ultimately the proof. So I imagine that there are a number of people on the call here who might be currently engaged in grant-funded work in their cities, or hope to be, plan to be. Ultimately people want to know what strategies you're implementing are working or not. And so you need to be able to have data and proof. And social network analysis can be instrumental in those ways.

Tracey Rizzuto: So back in 2012 when I first became involved with this, Baton Rouge was ranked among one of the top most dangerous cities in the country. They had shots fired rates higher than any other city in the United States. Kind of surprising, 'cause we're not that big of a city. And we sought help. We knew we had to do something different. And so we brought in some different kinds of analytic approaches. We had GIS. We knew where these crimes were occurring, it was a pretty stable pattern of target locations. So we brought in some consultants, some from Cincinnati, some from Milwaukee, and had them help us get started to help us understand what was going on.
Tracey Rizzuto: And they came back to us and they said, "Well, it looks like you've got a gang problem." And we said, "What? A gang problem?" And I don't think there was any image to capture what we were feeling. It kind of looked something like this. Like, "What, me gangs? Baton Rouge gangs?" Because we had this idea in our head that gangs were something that looked like the Bloods and the Crips. That looked like what only people in Los Angeles might experience. Or maybe people in Chicago might experience. But certainly not Baton Rouge.

Tracey Rizzuto: But when they [inaudible 00:26:50] these consultants, they helped us understand that there was a group-level phenomenon that was going on. Similar to many cities we were seeing that most of our violent crime in our city, most of our homicides, were really only being committed by less than 3% of people. Or actually, it was less than that. It was more like almost 2%. Very, very small number of people were engaged in almost 80% of the crime. And they said, "Well, you know, based on what we're seeing in your records, these people seem to be coming up in association with each other. They know each other. They work together. They have collaboration with and conflict against."

Tracey Rizzuto: And so that convinced us that we needed to look at things differently. It meant not only did we need to start looking at a group level strategy, but we also had to look at our data entry processes. Because we realized that we had not been equipped to be able to look at group analytics without having proper data.

Tracey Rizzuto: To this point, we had things in terms of tracking group membership on intake forms, but it was sort of haphazardly entered. Wasn't systematically done as part of our data entry procedure with crime reports. And so we had to go through training with our law enforcement to stress the importance of identifying if a person is indeed known to be engaged in a group, a gang, you need to identify it. And also educating them that groups are not just the look of Bloods and Crips.

Tracey Rizzuto: Groups can be very loosely affiliated, they can be kind of unsophisticated, but they can also be very dangerous. So changing the notion of what group member involvement is, so that our law enforcement agents could be more aware. Plus we already knew that they had loads of information. They've been working the field and they knew that some of the people that they'd been tracking were involved in gangs, in groups. But simply had not had an opportunity or did not encode that into a usable format.

Tracey Rizzuto: So what we did, we wanted to make sure that we were using good data protocol, primarily because we know that "garbage in, garbage out," applies to statistical analysis. You can't understand and learn from your data if you don't have good data quality. And in fact, that is a criticism that's been waged against focused deterrence approaches and used against social network analysis that if you go in with flawed data, your analytics practice output will be flawed. So we wanted to make sure that we were very systematic and that we were applying good process for how we encoded and documented information.
Tracey Rizzuto: So what we did with that is we started with homicide review. Basically took every murder that happened in the city over the past year and basically pulled it out and said, what’s going on here? What happened in this case? Was there any kind of group affiliation with it? We did group audits, where we looked very closely at what is a group, what is a gang? Is it possible that there was a relationship here or not? And as I mentioned, gangs and groups are different. According to the US Office of Justice Programs, gangs have a specific criteria. You have a different definition, or some different criteria here that are outlined. But the ability to be able to really certainly ascertain whether a group operates as a gang takes a lot of time, and lots of surveillance and investigation to be able to do.

Tracey Rizzuto: And so what we discovered in our homicide and group audit processes that we might have clusters of individuals that operate together, three or more, they have insignia, group insignia, they're engaged in criminal activity together, intimidation. You know, they might have six of these things but not seven. So they weren't officially on a gang list, but we knew that they were still worth looking at and considering. So we decided as a city we're interested in both groups and gangs.

Tracey Rizzuto: So once we had our data in place, I came in to run a social network analysis to extract and look for these associations and relationships. And if you've ever been a part of one of these meetings where a social network analyst comes in and throws their big picture on the screen, you're kinda overwhelmed and you think, what is this spiderweb of a mess that I'm looking at? It's kind of overwhelming. And so what I advise is taking a very targeted, direct approach to how you extract the information.

Tracey Rizzuto: And so in terms of trying to identify target offenders for a focused deterrence process, as we said, we're not looking at all criminal behavior. In our case we were only looking at violence, and specifically class one violence. Aggravated assault, aggravated rape, homicide. Very specific, narrow case. And we weren't interested in all people who are involved in gangs. We were simply interested in people who were involved in those most violent crimes, in very recent terms. Specifically the past month or couple of months. Whether or not they were in gangs or not. We were simply interested in drilling down to targeted individuals through this network approach.

Tracey Rizzuto: And so one way of targeting is to identify certain information that can be inferred. So using a gang list, for example, as a means to track individuals has simplicity. The list is easy to understand. But lists can expire. Once you put a list of names and groups together, gangs are dynamic. They change. So that list becomes outdated, almost as soon as it's created. So we wanted to have more fluid ways of tracking what's going on in our city.

Tracey Rizzuto: And so as we saw people roll out of criminal behavior and no longer engage, we tried to update our list. As we saw people who were engaged with groups and
gangs we wanted to discuss those among investigators and law enforcement to understand whether or not the person is worth considering as part of a group or not.

Tracey Rizzuto: So one feature of a social network analysis that actually is helpful in that process is let's say we kind of pull out this little block of individuals. We have here people color coded are known to be involved with a group. So Tyree's known to be involved with Group A. We know that John, Tina, and Gavin are known to be involved with Group B. These are gang members. But we have this one person here, Hector, who has no known gang affiliation. So it raises questions. So we want to know, is it possible that Hector is involved with a group and simply has not been identified as such? Or, even if this person is not in a group, certainly looks like this person is running with that crowd.

Tracey Rizzuto: So if you notice let's say if these blocks, if the ties here indicate co-occurrence in a violent event, turns out Hector seems to be engaged in a lot of violent criminal activity with a lot of gang members. So maybe he's not a gang member, per se, or even a group member per se, but chances are Hector knows a lot of information. So he's still worth looking at and talking with.

Tracey Rizzuto: Another way to be able to extract this sort of information in different contexts. Let's say that what we were looking at here instead of criminal records, is what we're looking at are phone calls. You can sometimes look at jailhouse phone calls. You might find that these are people who are placing calls. The people who are colored, these colored blocks, are incarcerated. And Hector is not incarcerated. Looks like Tyree places a lot of calls to Hector. John places a lot of calls to Hector. Tina calls Hector. But Hector has no criminal record, he's this clean source. He's kind of off the grid. That indicates there's a relationship. Because there's a relationship across all these people, Hector might be a good person to talk to again. Not because he, per se, as any criminal behavior to his name, but he might be a good source of information. And we've actually followed leads such as these and they've been productive in helping us to understand some of the crimes we've been trying to solve in our city.

Tracey Rizzuto: Another method is kind of this process of letting relationships percolate up through the bottom-up process is, I've intentionally blurred this out to kind of conceal names, but sometimes you can identify clusters of people that tend to collaborate or tend to commit crimes together over and over again. So let's say in this case the size of the boxes indicate more repetitive activity, so the bigger they are the more likely they were committing crimes over and over again among these two people. Versus a small box might indicate maybe only having one criminal incident together. Large boxes among the same people over and again indicate some kind of repetitive behavior in this cluster. In this case, these individuals are not known to be involved in a named group. They're not on the radar. But they certainly are working together over time in multiple criminal events. So maybe it's possible that we could look to see whether or not this is a
new group that’s emerging. So the social network analysis process can help to extract new clusters that might be worth investigating or looking into.

Tracey Rizzuto: Another approach is some people say, "Well, you know, we already have lists of gangs and we already have lists of groups and members and incidents. Why do we need these maps?" So here's an example. This is what a typical spreadsheet might look like of different groups and the incidents that they've been involved with. At a glance you can say, "Well, I can tell that this group Toohot seems to be committing a lot of incidents, whereas other groups might be committing less." But that's almost the extent of what you can extract, just from a glance.

Tracey Rizzuto: But if you show it in a different format, let's say we run this through a social network analytic approach, where you look at the relationship where these groups actually share incidents. What you now see is there are times when these groups are involved in a common incident, which means there's some kind of group on group collaboration or group on group conflict going on.

Tracey Rizzuto: This helps you understand the trends and patterns of the kind of violence that's going on in your streets. Are you seeing a lot of group on group activity? Or does it seem to be more independent of the group's nature? So all of this can be informative in helping to guide law enforcement in their investigations and their enforcement.

Tracey Rizzuto: And then ultimately, so those are some methods, ways you can tie in social network analysis. But ultimately you want to show that what you're doing has an effect. And so, this is some examples of the way social network analysis can be used from the evaluative standpoint. To help provide support or additional learning about how you can strengthen and improve your program.

Tracey Rizzuto: So for example, you could be tracking increases and decreases in group-related violence by knowing who the group members are and have a better understanding of their associations. You can look to see what kind, how many incidents are associated with a group member, involved individuals. And track that over time. You can also be looking at group on group violence over time, to see how those rates change. And if you fold this into a GIS approach, if you know where there are territories where certain groups are engaged and you're able to identify the violent incidents and members of those groups, you can be able to link them to targeted hotspots over time to show how those areas are impacted, the density of that violence in those areas changes over time.

Tracey Rizzuto: Now a second strategy for focused deterrence is communication. So you have this new initiative in place, you want to spread the word. You want to get the word out about it. There are a couple of ways that focused deterrence approaches this. One is called a call-in, and so a call-in is where you have a very highly scripted controlled environment where you bring in community members, [inaudible 00:39:13] leaders, service providers, victims of violence, law enforcement. Bring them all together and you confront some of the
individuals from groups and gangs that have been most active, and therefore most likely to be either a victim of violent crime in the future or a perpetrator of crime. Invite them to hear your message. To say that we want the violence to stop. We want you to accept these services, and walk away from a life of crime. And these are very impactful strategies for communicating.

Tracey Rizzuto: Sometimes you can't get those individuals to turn out for such an event, you have to go to them. You knock on their door, do custom notifications. But ultimately you want to know, who do you communicate to? And does this communication style work? So that was the first question. How are we supposed to be communicating with here? Now, there is a common approach in law enforcement to look for the most violent individual, the most notable individual. Those are the people that most commonly pop into mind when you think, "Okay, who are we gonna talk to? Who do we need to get this message to?" But if you think about it, sometimes the most violent is not ... the biggest gun's not necessarily the biggest mouth.

Tracey Rizzuto: If the goal here is to communicate, to have this message brought back to the community and back to those engaged in violence, to tell them, "Look, oh, there's something different going on, we need to watch what we're doing," is the most violent person likely to be the best candidate for carrying the message? So think, if we had just pulled Bin Laden aside and said, "Hey, what you're doing is really bad, you need to stop," do you think that would have made a difference? Probably not. There might be other people that could be better message-carriers.

Tracey Rizzuto: So if you look at a social network map, you might think well maybe the person with the most associates, the person who has the most connections in the community. So they just have kind of gibberish names here. But if you look at people and the associates they have in relation to them, you might think, "Oh, Joe. This guy John Doe seem like a good candidate because he has lots of connections." Well social network analysis can actually help in developing strategy around communication.

Tracey Rizzuto: So we see there's a difference between violence, influence, and power. And social network theory has enabled you to be able to decipher the value of different actors in a network. And to determine which ones are most useful for which purposes. So for example, if we're looking at this here, we have people and they are all engaged in violent activities. Ties connecting them to people they've been engaged with violent activity with. Who was the most violent? Well if we're just looking at this, you can't really tell. You need more information.

Tracey Rizzuto: So let's say we fold in more information and we say okay, these numbers here depict the number of violent incidents each individual's been engaged with. So this black node has been engaged with one violent incident, this number three's been engaged in three violent incidents. It's easier to tell. Okay clearly, the most
violent person here would be purple and red. But is that the person who's most able to carry a message?

Tracey Rizzuto: I've mentioned the most violent isn't necessarily the most vocal. And so in fact, social network researchers have done simulations to look at things like influence versus power. So if the goal is to diffuse information through the streets and carry a message about your call-in and your initiative, turns out the most influential person in this dynamic is actually the central node here. They have easy access to others, to people on either side.

Tracey Rizzuto: But another way to consider this with regard to groups and gangs is influence is not equivalent to power. And in fact, [inaudible 00:43:05] had a recent article, well it's not that recent, 2012, had an article that looked at the American Mafia and some of their power brokers and discovered something interesting. They found that some of the ringleaders of the most violent mobs back in that day were not the influencers. They in fact had a different kind of position within the structure of the network, through an idea of centrality, the measure that looks at how connected you are within a network. They discovered that the centrality of power brokers, were kind of different than the centrality of influencers.

Tracey Rizzuto: And when they explain it, it makes sense. They say people who have the most power in a group or gang tend to have, be very central, but have close confidantes. They're not likely to be boundary-spanning with other gangs or groups. They're less likely to be interfacing with other gangs or groups. Also, they said they're not necessarily the most violent either.

Tracey Rizzuto: So if you were simply going on violence to depict who might be the key message person, you can't look at violence, the most violent. Because they said that it turns out that most people that have more power don't always do the dirty work, right? They might be the masterminds or they might be the person who calls the shots, but they aren't necessarily the ones that are going out slinging guns. So using social network analysis theory and method helps us differentiate between violence, influence, and power and determine who is best to bring to these call-ins, who is best to carry a message.

Tracey Rizzuto: Now ultimately from a proof standpoint, you want to know that this works. So you hope that the people you bring to the call-in actually see declines in their violent activity. And so that's one way of tracking through social network analysis is to look at the number of crimes associated with people who are engaged in, who attend these call-ins. Comparing pre and post. In this case, what we were interested in is to know the duration of this effect. You might be brought into a call-in and that's very impactful and frightening at first, and sticks with you. But maybe after a few weeks you start to forget and you go back to your old activities. So looking at pre and post activity of people in the call-in.

Tracey Rizzuto: But, if what we're really interested in is diffusion, what changes on the streets and changes in the culture of crime, is we want to know what's happening with
the associates? What are they doing? 'Cause the hope is that whoever you bring to the call-in goes back to their community, goes back to members of their group and says, "Look, we need to put our guns down. Something's different going on, and we need to stop." So the way social network brings value to this question is to look at the criminal behavior of associates. People who have those network ties with people engaged in call-ins.

Tracey Rizzuto: And what we found was kind of interesting. That actually, the decline comparing pre to post criminal activity, the decline is even steeper with associates than actually with the call-in participant. So it kind of shows that there is this diffusion effect that can happen in communities when the word gets out. And the other thing that was impressive for us to note is the fact that an actual decline was more sustained over time. The message seemed to hold greater impact for the associates over time.

Tracey Rizzuto: Okay. Now the final [inaudible 00:46:36], I know we're getting kind of close to the end here, but the final strategy of focused deterrence is you can't carry out these levers without a team. As many researchers and theorists and philosophers have noted, complex problems require many hands. You need to have multiple groups and agencies and interests on board to be able to solve a problem as complex as violence and crime.

Tracey Rizzuto: And so when we began our initiative, we identified who we believed to be the key partners we wanted on board from education, social services, non-profits, across the board. We knew who our team was. We brought them together, sat them in a room, and we were about to lay out the goals of the initiative. 'Cause we all knew that all of these partners, we brought in 40 different organizations, we knew they were all interested in crime reduction. We knew that they all serviced roughly the same population of people. And interestingly, we knew that they were all pretty much from a small geographic area, just a few square blocks in the city.

Tracey Rizzuto: And so we brought them together, and as we started the meeting I collected some social network data. I asked them who in the room they had worked with, or which organizations their organization had worked with before. To get a sense of the collaboration. And out of a room of 40 organizations, on average organizations only had about, or only knowledgeable, collaborated with, about two other organizations in that room.

Tracey Rizzuto: I found this to be pretty much astonishing that you have similar focus, similar clients, pretty much blocks from each other, most of them didn't know the others existed. So what we saw here was a stark gap in community capital, and just lack of knowledge and awareness and resource sharing within this like-minded community. And so we realized that we needed to actually work on building our strength in community capital so that we could work better together.
Tracey Rizzuto: And so, social network analysis. It's about how this was applied, was pretty simple, if you think about it. It's not enough to simply get around like-minded people. Right now on this call we've got several people attending and you all share something in common. If you had a chance to meet each other you could probably exchange business cards and ideas. But there are a lot of people on this call, and that would take a lot of time. Wouldn't it be nice if I could give you a tool that'd allow you to specifically drill down and say, look. It'd be great to meet all these people, but if you really want to get your problems solved you need to talk to these five people. They have solutions for you. And not only that, even better, you have solutions for them. You have reciprocal mutually beneficial interests.

Tracey Rizzuto: And so that's what we aimed to do, is help our community identify mutual reciprocal collaborative potential among partners in our focused deterrence team. Why? Because yes, we know that our partners come together because they care about the community. But over time, participation in initiatives can start to wane. These organizations need to be able to know that they're doing benefit for the community, but that their own organizations benefit from it as well. And finding the ability to help each other out is what we aim to do with social network analysis. So essentially what we did is a process of identifying needs and strengths of each partner that was engaged in our initiative. And then through our strategic compatibility, identified who each partner really needed to be working with.

Tracey Rizzuto: So let's say, the classic example I found was in this initial meeting where all 40 came together, as we were doing introductions across the room there was one organization that said, "We have great ties to the community. When we hold a program, youths turn out in droves. But we don't have a facility. As soon as it gets hot, we have nowhere to go." And then a woman stands up right next to her and says, "I do youth programming too! I have this facility in your neighborhood. But I host programs and no one turns out." And so this is the perfect example of how, together, they can help to solve each other's problem and strengthen the community even greater.

Tracey Rizzuto: So this is a social network strategy that can be useful for team building, and when it comes to the proof, the picture says a thousand words. So here's a picture of connectivity across these members early on. Two years later, there's lots more density, organizations seeing the benefit of working together. So in terms of evaluation, the pictures have a lot but you can also track these things through metrics. You have growth metrics, you could be tracking partners and collaborations per partner over time, you could track these things across the initiative. And you can also have density and metrics that show whether or not, how dense or connected the system is becoming over time.

Tracey Rizzuto: Final slide is, so where do you get started? Just throwing a lot at you today. But you have a lot of this already at your fingertips. So the data needed to engage in social network analysis is all over. You can find it in social media. There's a lot of
interested tools coming out for scraping information about networks from Facebook and Instagram. But I want to urge caution here. Simply being an associate through a social media source is exceptionally loose for making an inference about relationships. I mean, we all have people in our accounts where it’s like, you kind of know the person, but you don’t really know, it doesn’t really mean you have a relationship with them. Maybe we don’t know, we’ve never even met, but we have mutual friends. The ability to be able to draw relationship information from behavioral, verifiable sources that connect people and time and place is really what you want to be working with. So, a lot of good information that comes from social media, but use it with caution.

Tracey Rizzuto: The other is, there are a lot of archives that are fruitful. I’ve already mentioned criminal incident reports, which our cities are already tracking. NIBIN, the National Integrated Ballistics Information System, has lots of excellent information for being able to link cases through shells, bullet shells. I mentioned the use of jailhouse call data, there’s another source there. But there’s lots of data at your fingertips, and if you find that this technique seems to be fruitful for you, I’d be happy to take questions and provide resources, and I also want to give a plug to the University of Kentucky’s LINKS course. They have a one week course on social network analysis, crash course, but excellent, and you can walk away with a working knowledge in how to do social network analysis. And that’s all I have.

Tracey Rizzuto: So are there any questions?

Erin Farley: Great! Thank you so much, Tracey. I have the chat box open, we'll see if anybody posts a question.

Erin Farley: Jason, do you have any questions on your side? I think he might be there.

Jason: No, I don't have any on my side.

Erin Farley: Okay. So it's interesting just sort of to speak to something, I'm blanking on the title right now, and it's kicking me. The name of the research. But there was, it's different ... it was social network analysis without the actual software or visual. It was kind of using what you were talking about, sort of that first phase of the data and maybe something like an Excel sheet, and it was a project, but it's so very similar. In New York City. In Manhattan. And I'm blanking on the name, it wasn't Smart Prosecution, it was something data driven. Prosecution.

Tracey Rizzuto: [crosstalk 00:54:48] prosecution?

Erin Farley: Yes, yes.

Erin Farley: Okay, great. Yeah. I worked on that a very little bit before I left I worked for the Center for Court Innovation. And what you were talking about just resonates so much with the work that they were doing.

Tracey Rizzuto: Absolutely. They've been a huge influence, I actually got sent out to visit with them for their IBC training, I think at least for three years we've been out there stealing their ideas and trying to kind of compare. But yes, it's a very similar process where you try to identify the relationships that tie people, incidents, and try to make the most of that information.

Erin Farley: Yeah. I think they somehow had flagged, well this was years ago, but initially they had flagged high risk offenders. So it was kind of like you're saying, they created this category of multiple offenders and used them as the starting point. And had this connection between sort of getting the information from law enforcement to the prosecutors so that when they were reviewing the data before arraignment they could actually get a real sense of what this person, who this person was, and what activities they were engaged in that wasn't necessarily available on their rap sheet. And could really help steer how to handle that case. It was really quite interesting, and also, like you're saying, quite complex.

Erin Farley: So I think we got a question. So where did you say the place was, was the place to take a course? On actually doing SNA.

Tracey Rizzuto: Yes. It's University of Kentucky has a LINKS training. L, I, N, K, S. And it's in Lexington, Kentucky. And it's wonderful. There are other resources available too. I know that there's also a social network analysis workshop camp that goes on at Carnegie Mellon, and I think University of Michigan might have one as well. I'm just most familiar with LINKS. I've attended it myself. Several of my students have attended. And it's good for all levels, it starts with introductory all the way to mind blowing advanced things. Way out of my league. But yeah. So I just am most familiar with that. There are also some good, Coursera has some free MOOCs that are good for, but yeah. There are great resources out there for that.

Erin Farley: Great. Thank you. Before we end, Jason, can you start the poll? I think we might be, 'cause it's 4:00 now, and if we have any more questions I'll definitely jump in, but if everybody could take just a few minutes to answer a few of these questions we would greatly appreciate it. And then, okay.

Erin Farley: Okay, great. Let me see. Let me just wrap up, I think I don't see any additional questions, but Tracey has posted her email there. So I'm sure if anybody has any follow-up questions that would be okay if they reach out to you?

Tracey Rizzuto: Absolutely, yes.
Erin Farley: Great. Well thank you so much for this presentation. And for everyone who is still here, we will be posting this soon. Most likely tomorrow. So if you enjoyed the presentation, then tell your friends, tell your colleagues. It will be up tomorrow so they can watch it as well. So thank you everybody for attending, and again, thank you so much Tracey, for doing this for us. We greatly appreciate it.


Erin Farley: Alright, take care everybody.

Tracey Rizzuto: Bye-bye.

Erin Farley: Bye.