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by JTIC

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About TechBeat

TechBeat is the monthly newsmagazine of the National Law Enforcement and Corrections Technology Center System. Our goal is to keep you up to date on technologies for the public safety community and research efforts in government and private industry.

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The NLECTC System
The Justice Technology Information Center (JTIC), a component of the National Institute of Justice's National Law Enforcement and Corrections Technology Center (NLECTC) System, serves as an information resource for technology and equipment related to law enforcement, corrections and courts and as a primary point of contact for administration of a voluntary equipment standards and testing program for public safety equipment.

JTIC is part of the NLECTC System, which includes the Justice Innovation Center for Small, Rural, Tribal, and Border Criminal Justice Agencies, which focuses on the unique law enforcement challenges faced by those types of agencies; the National Criminal Justice Technology Research, Test and Evaluation Center, which provides technology-related research and testing and operational evaluations of technologies; and the Forensic Technology Center of Excellence, which supports technology research, development, testing and evaluation efforts in forensic science. In addition, a Priority Criminal Justice Needs Initiative exists to assess and prioritize technology needs across the criminal justice community.

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Cost/Benefit Analysis Tools Helps Agencies Decide "2D" or "3D"

Cost/Benefit Analysis Tools Helps Agencies Decide "2D" or "3D"

As the investigator studied the details of the latest case to cross her desk, something about it seemed familiar, similar to a case from several months ago. Calling up that file, she slipped on the virtual reality goggles and took another look at the 3D scan of the earlier crime scene, searching for that "something" that had triggered her flashback.

Sound like the latest "no resemblance to real police work" drama on Wednesday night television? Maybe. But 3D crime scene scanning and virtual reality review tools are available, and for agencies wondering whether the technology investment would benefit them or be an expensive drain on too-limited funds, there's a tool that can help.

The 3D Scanning for Crime Scene Investigation Cost/Benefit Analysis Tool, was developed out of "Analyzing the Impact of Virtual Reality and 3D Capture Technology on Crime Scene Investigation," a project funded by the National

Institute of Justice (NIJ) under Grant No. 2016-IJ-CX-0017.

A partnership between the Wisconsin Institute for Discovery Virtual Environments Group at the University of Wisconsin-Madison and the Dane County Sheriff's Office (DCSO), the project set out to compare several potential methods of capturing 3D crime scene data and provide a cost-benefit analysis report. However, the research team realized the difficulty of producing an analysis that had relevance to all of the 20,000-plus law enforcement agencies in this country, and came up with the online tool as the answer.

Principal Investigator Kevin Ponto says that as the team talked to members of the law enforcement community, they realized how difficult it was for criminal justice professionals to see how the overall analysis provided them with meaningful information.

"It was 'I'm from a little tiny town Wisconsin, how do your results impact me? I'm from Chicago, how would this benefit me?' So instead of continuing with only an all-encompassing approach, we also developed a tool that allows each agency to produce tailored results," Ponto says.

To use the tool, agencies enter costs for personnel and equipment, and data on local homicide and traffic accident incidents, and come up with upfront costs, annual costs, specific savings, annual benefits, and comparisons between the costs and the benefits. The research team used data on homicides and traffic accidents because of specific benefits: homicides, because detailed reconstruction and the opportunity to "revisit the scene" months later could provide the information needed to solve a case, and accident reconstruction, because a 3D scan eliminates the need for time-consuming measurements and allows traffic flow to return to normal much more quickly.

Working in partnership with the DCSO, the laboratory team scanned one actual homicide scene and did other research at a crime scene house located at the University of Wisconsin-Platteville Criminal Justice Department. Researchers compared use of LIDAR technology and a handheld infrared scanner with traditional evidence-gathering techniques involving taking photographs and measurements by hand. The resulting cost-benefit analysis showed that LIDAR provided more positive cost benefits than the handheld scanner, and both provided positive benefits when compared to traditional methods. Those benefits include preserving the scene at the point in time the incident occurred, the potential to further

measure and evaluate evidence at a later point in time, nonintrusive evidence-gathering methods and a substantial savings in labor hours, freeing officers for other duties.

A specific need to realize some of those benefits at a particular crime scene led Ponto and his fellow team members, Ross Tredinnick and Simon Smith, into using their knowledge of 3D scanning technology in a law enforcement setting. The lab was developed to research use of 3D scanning technology in the home health care setting, but during the investigation of a homicide west of the campus, the team received a call from the FBI asking if the methodology could be implemented at the crime scene. Tredinnick's scan impressed the FBI agents and DCSO, but agents and officers thought the upfront cost would make everyday use of the technology impractical.

"People often are willing to invest in a technology if they understand its benefits, and those benefits were not clear to the individuals making the purchasing decisions," Ponto says. "This technology is really transformative in its ability to allow you to do additional investigation when you're no longer at the scene. If you re-open a case years later, you still have really rich information. If there's bad weather coming in, you can capture outdoor evidence that otherwise could be lost. And with the recent revolution in home use of virtual reality, the costs might not be as high as purchasing departments believe."

To get a better understanding of the potential applications and benefits of 3D technology to the law enforcement community, the research team set out to convene a series of focus groups to help them learn how crime scene investigators would use 3D images; their needs related to technology features, accuracy and display; and potential barriers.

"One really interesting hurdle the focus groups came up with is 'How can you tell if someone has digitally altered a 3D recording?' " Ponto says. "Defense attorneys referred to 'computer voodoo technology' that you couldn't be sure was real and accurate. Also, courtrooms generally don't have cutting-edge technology

when it comes to potentially displaying results for a jury."

Focus groups from the law enforcement and legal communities have been completed, with a group involving individuals with jury experience yet to be convened. Additional field research and completion of a final report also remain to be done. And it was when the research team began to present those initial results to the law enforcement community that they realized the law enforcement community need was for neither a preliminary nor a final research report — it was for the Cost/Benefit Analysis Tool to help them determine benefits specific to their own agency.

"As we started talking to stakeholders, we realized it was unclear how the generalized data fit their needs. We realized it really wouldn't be more work to make a tool that fit individual agencies and it would be much more useful," Ponto says.

Access the Cost/Benefit Analysis Tool here. For more information on "Analyzing the Impact of Virtual Reality and 3D Capture Technology on Crime Scene Investigation," including links to the grant report, focus group reports and cost-benefit analysis report, click here. For more information on NIJ's digital forensics portfolio, contact Martin Novak, senior computer scientist, at martin.novak@usdoj.gov.

Article photos: Wisconsin Institute for Discovery Virtual Environments Group at the University of Wisconsin-Madison

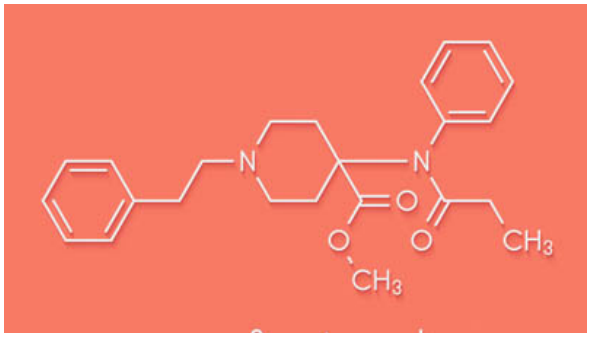
Main photo: Wisconsin Institute for Discovery Virtual Environments Group at the University of Wisconsin-Madison

FTCoE Online Workshop Series Focuses on Synthetic Drug Epidemic

FTCoE Online Workshop Series Focuses on Synthetic Drug Epidemic

In the first six months of 2016, paramedics in the city of Akron, Ohio, responded to 320 drug overdose calls. In the first 26 days of July, they responded to 236. The synthetic opioid carfentanil, it appeared, had come to town. [1]

The impact of that spike is just one of many aspects of the synthetic drug epidemic affecting the U.S. discussed in "Best Practices Guidance for Advancing Research Initiatives and Combatting the Synthetic Drug Epidemic," a three-part online workshop series produced by the National Institute of Justice's Forensic Technology Center of Excellence (FTCoE).



Working in partnership with the Center for Forensic Science Research and Education (CSFRE) — a 501(3)c nonprofit organization that provides forensic education at the high school, college and professional level — the FTCoE convened a number of leading experts in

carfentanyl

the area of novel psychoactive substances (NPS) for 10.5 hours of presentations and discussions spread out over three days in July 2018. Those who could not attend the online webinar series when it was presented live, or who want to review it, can access the archival content here.

"After we produced a very successful 13-part webinar series in 2017, we began working with CFSRE and its executive director, Dr. Barry Logan, to prepare a more in-depth crime scene and analytical series," says Jeri Ropero-Miller, FTCoE chief scientist. "This series helped practitioners to better understand and prepare themselves for what we are facing with this synthetic drug epidemic, and creating this series helped address this national and critical need." (See *TechBeat* November 2017).

Logan served for 19 years as state toxicologist, overseeing Washington State's forensic alcohol and drug testing programs, and in addition to private work, serves as executive director of CFSRE.

"Any time we have Dr. Logan as a presenter, he's a big draw," says the FTCoE's Josh Vickers, who produced the series. "His knowledge and expertise always bring participants in."

Logan started off Session 1: The Synthetic Drug Crisis – Identifying NPS in Forensic Casework, with an overview of the synthetic drug crisis as a whole and how it affects everyone who deals with these drugs, from law enforcement to lab professionals to coroners and medical examiners. It focuses on the importance of sharing information among stakeholders in developing ways of combatting the epidemic. A presentation by Eric Lavins of the Cuyahoga County (Ohio) Regional Forensic Science Laboratory and Cuyahoga County Medical Examiner's Office, the location hit by the introduction of carfentanil referenced above, wrapped up Session 2: Analysis of NPS – Practical Considerations and Analytical Approaches.

"Law enforcement professionals will likely get the most overall benefit from Day 3 (Interpretative Toxicology for NPS in Forensic Casework)," says Vickers. "The presenters focused on synthetic drugs as a public health crisis and concern. There was good information on fentanyl and the crime scene, and how law enforcement has to handle crime scenes involving "white powder" differently than in the past."

Other presentation topics from Session 3 included:

- Recommendations for drug-impaired driving cases and motor vehicle fatalities.
- Crime scene and autopsy findings in medicolegal death investigations.
- Fentanyl and its analogs as a major public health concern, and the misconception that these drugs are heroin vs. fentanyl analogs.
- Synthetic cannabinoids and how compounds associated with these drugs can have extremely adverse effects on the community.

Because the FTCoE interface gives users complete on-demand control of the webinar archives, individuals can access only the presentations that interest them, listen to the entire content in one lengthy session and anything in between. A total of 593 unique individuals registered in advance of the series, with 378 attending some portion of the live presentations. Others have already signed on to review the archives, and the original registrants retain their access as well. As with all FTCoE online offerings, participants received a certificate of completion that they can use for documentation of professional continuing education.

"The advantage of doing everything online is we can touch a worldwide audience and for the participant, it's all free. When an individual comes to a conference to hear a presentation, by the time you add up transportation, car rental, hotel and other expenses, the total can be cost-prohibitive," Vickers says. "Every bit of information the FTCoE puts out through its NIJ grant is free to anyone in the world. In addition to lab professionals, we have law enforcement officers, professors and students who join our webinars. We have a lot of people from different professions and different backgrounds."

Although individuals who view the archival presentations don't have the advantage of participating in the live question-and-answer sessions if their schedules kept them from attending the live sessions, they still can access every word of the original content.

"We know it's especially hard for people to stop in the middle of their workday and watch, and this gives them the opportunity to go in as their schedule permits. They can even pull it up on their tablets or smartphones if they want," he adds.

For more information on this and other FTCoE programs and projects, click here. For more information on forensics programs of the National Institute of Justice, contact Gerald LaPorte, Director, Office of Investigative and Forensic Sciences, at Gerald.LaPorte@usdoj.gov.

[1] Nick Glunt, "Overdoses continue spiking in Akron, surpass 200 in less than a month," *Akron Beacon-Journal*, 7/26/2016.

Participants Give Thumbs Up to Webinar Series

Participant comments on the webinar series include:

"Beneficial especially because everyone cannot attend annual conferences. Newer scientists get exposure to experts in the field. Also up-to-date information is presented that would not be available in a timely fashion."

"Invaluable information!!! Presented by outstanding presenters!"

"The biggest benefit was additional exposure to types of drugs being seen in other labs and other parts of the country."

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Leadership Series Addresses Challenges in the Forensics Field

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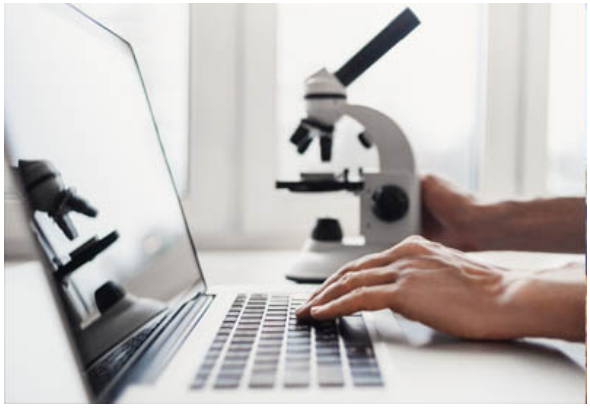
Some people say that there are leaders, and there are followers. But according to the Forensic Technology Center of Excellence (FTCoE) Leadership Series, everyone's a leader.

Visit here, which provides an overview of and access to the 12-module series, and in addition to learning that "every forensic scientist is a leader," you'll be able to watch a promotional video, read about the philosophy behind the series, and gain access to the modules themselves, instructor bios and additional resources.

Developed to complement the American Society of Crime Laboratory Directors (ASCLD) Leadership Academy, the FTCoE Leadership Series introduces leadership concepts to the forensic scientist. John Morgan, FTCoE director, explains forensic scientists often receive promotions due to their excellent technical skills, but seldom receive management training. The result is placement in supervisory positions where they face operational challenges for which they have not been trained. The self-paced, stand-alone modules provide introductory-level information on a variety of topics, specifically from the viewpoint of a forensic

scientist.



"A lot of leadership training is very broad. You could take it and then go to work anywhere from a restaurant to a government agency," Morgan says. "We felt it was important to develop something that spoke to forensic scientists and the specific challenges they face."

In order to decide what those specific topics would be, the FTCoE worked directly with leaders in the forensic lab community, five of whom serve as instructors for the series. The topics selected for the series were the consensus choice from these experts, and the FTCoE adapted the materials from relevant content originally developed for law enforcement use.

"The Leadership Series addresses emotional intelligence, communications and other topics not addressed in depth by the ASCLD academy, which focuses more on operational aspects related to forensic science. The two can work together to give someone a solid grounding," Morgan says. "In fact, many of the topics are of relevance to the bench scientist as well as managers and supervisors."

The 12 topics in which participants get a solid grounding are as follow:

- **Generations:** Addresses the differences among various age cohorts in the workplace and how they relate to work expectations, attitudes toward authority, loyalty and more.
- **Cultural Diversity:** Looks at how different cultures, traditions and races have widely varying ways of looking at the world, and this diversity can be used to challenge assumptions and promote professional growth.
- **Personal Leadership:** Gives perspective on what kind of leader to strive to be and provides examples of strong leadership traits.
- **Moral Compass:** To be worthy of the trust placed in them by the community, forensic scientists must strive to serve their communities through the equitable administration of justice. Provides a comprehensive summary of the book "Moral Compass for Law Enforcement Professionals."
- **Leadership and Ethics:** Covers how to approach ethical problems in the forensic laboratory, including historical and hypothetical examples.
- **Leadership and Change:** Forensic laboratories resist change for many reasons, including a reluctance to bring new ideas or techniques into practice that might lead to mistakes. Gives

perspective on how change can benefit organizations and also cautions against making changes just for the sake of change.

- **Leadership Principles and Concepts:** Covers the foundation of what leadership means, what is expected of a leader, types of leaders and how a leader influences others.
- **Leadership and Power:** Explains power may derive from a position held or from knowledge and skills. Be aware of the sources of power in a situation so that you can use them wisely to promote a positive work environment.
- **Leadership Theories and DiSC:** Gives a clear distinction between leading and managing, as well as introducing the DiSC Profile Behavior Pattern Assessment.
- **First Line & Mid Level Supervisor:** Looks at the transitional challenges often faced by first-line supervisors in the forensic laboratory as they take on their new roles and responsibilities.
- **Founding Fathers:** Examines the challenges that the American founding fathers faced as they began the process of establishing a new government and the teamwork they displayed in order to accomplish their goals in very trying times.
- **Emotional Intelligence:** The forensic laboratory is a human organization with relationships and emotions and the joys and frustrations of managing people. Explains how emotional intelligence helps with navigating those relationships and emotions.

"The modules are not just one big webinar broken down into parts. Each module stands on its own and should take 45 minutes to an hour to complete," Morgan says. "We issue a certificate of completion of any module an individual completes, which they may be able to use to meet their organization's training requirements. We encourage people to take all 12 modules, but if some are of more interest than others, that's okay too."

In addition, the FTCoE produced a special season of its "Just Science" podcast series to complement the materials, "Just So You Know: Leadership Series":

- Special Release Season: Just Guidance Leadership
- Special Release Season: Just Motivational Leadership
- Special Release Season: Just Strategic Leadership
- Special Release Season: Just Servant Leadership

And that statement on the website that every forensic scientist is a leader?

"Every scientist is a leader who makes very important decisions related to criminal justice. It's important for all forensic scientists to recognize that they are in a unique position of trust," Morgan says. "Forensic science is the one place in the criminal justice system where professionals are trusted to make objective assessments based on the evidence at hand, all the

time. That's a critical part of the leadership series and an important concept to impress on every forensic scientist."

For more information on the programs of the FTCoE, contact Dr. John Morgan at jmorgan@rti.org. For more information on forensics programs of the National Institute of Justice, contact Gerald LaPorte, Director, Office of Investigative and Forensic Sciences, at Gerald.LaPorte@usdoj.gov.

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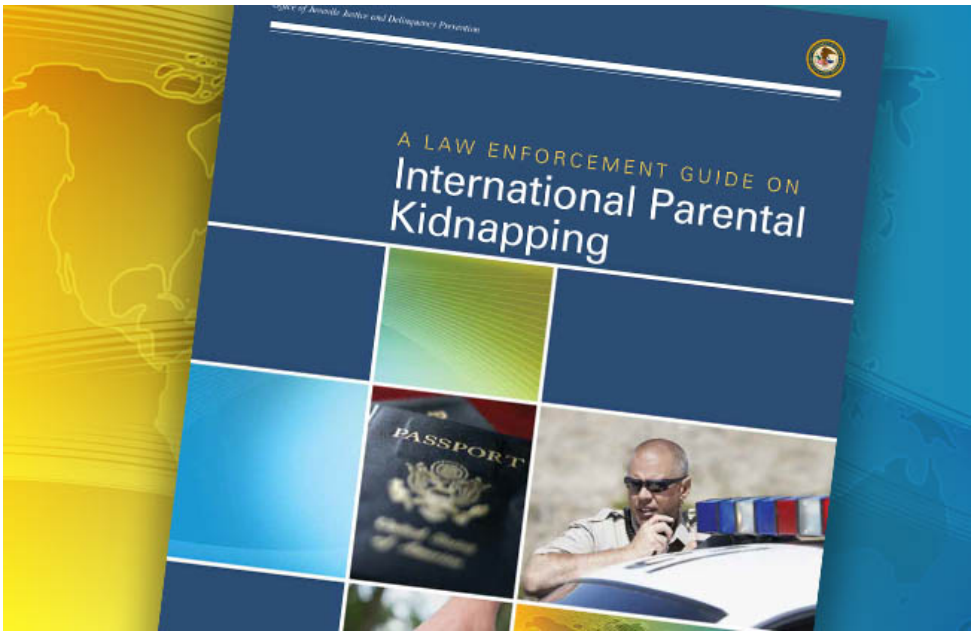

International Child Kidnapping Guide for Law Enforcement

Office of Juvenile Justice and Delinquency Prevention

A guide is available to help law enforcement prevent and respond to cases of international kidnapping of a child by a noncustodial parent.

In 2017 there were more than 900 cases of international kidnapping of children across 59 countries reported to the U.S. Department of State's Office of Children's Issues. Law enforcement agencies play a critical role in the prevention and resolution of international parental kidnapping.

A Law Enforcement Guide on International Parental Kidnapping, from the Office of Justice Programs' Office of Juvenile Justice and Delinquency Prevention, describes law enforcement's role as initial responders and investigators of kidnapping crimes, discusses applicable laws and legal remedies for child recovery and reunification, and outlines considerations for criminal prosecution and extradition of offenders.

Read the guide, click here.

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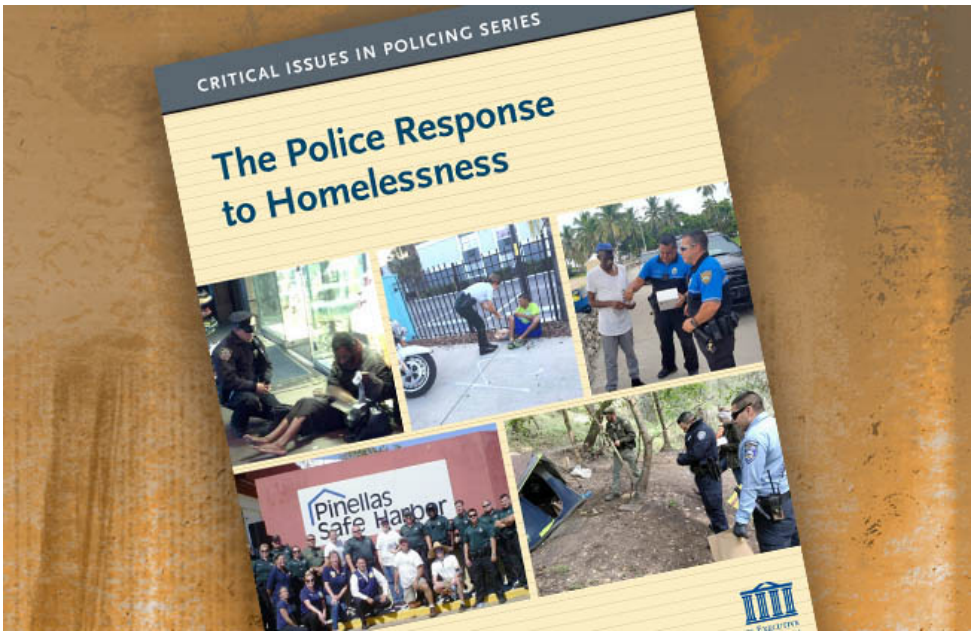

Report: Police Response to Homelessness

Police Executive Research Forum

A report is available that discusses law enforcement departments' responses to homelessness in their communities.

The report, *The Police Response to Homelessness*, is the result of a 2018 day-long conference on homelessness in California that brought together about 250 police chiefs, sheriffs, front-line officers, and local government and community partners and researchers.

The report notes that in January 2018, 72 percent of Police Executive Research Forum members who replied to a questionnaire said that homelessness in their communities had increased in recent years. More than half of the respondents reported increases in mental illness and substance abuse among the homeless population.

Police leaders increasingly recognize that they cannot make the problem of homelessness go away through enforcement actions alone, the report said. Conference participants noted that law enforcement departments see their role as taking leadership and finding innovative

solutions to homelessness, which often involve multi-faceted activities with social service agencies, other government departments and other partners. The report showcases promising practices that were discussed at the conference.

To read the report, click here.

Main photo: Robert J Daveant/Shutterstock.com