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Cambridge police station's got its own CSI team

Wicked Local Cambridge
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Wicked Local photo by Keith E. Jacobson

Shawn Dolan, Identification Unit manager, checks out a finger print at the Cambridge Police Department.

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Shawn Dolan, Identification Unit manager, demonstrates swabbing for DNA as part of the processing of evidence, at the Cambridge Police Department.

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At the Cambridge Police Department, Brooke Miller, Identification Unit technician, is using an forensic chamber to demonstrate how iodine fuming is used to develop prints on porous surfaces.

Be it a battered bike, bloody clothes or a bank robbery note, Cambridge Police for the past year can now document, examine and analyze crime scene evidence right inside the Sixth Street headquarters. Brooke Miller and Shawn Dolan are two young forensic scientists and civilians who run the new "CSI"-style crime lab on the fourth floor of the Cambridge Police station. They assist police in collecting evidence at a crime scene and bring it back to the lab to process it for further analysis.

"We are the starting point in any investigation," said Dolan. "We have the training and experience to collect all the evidence before it is analyzed. We are one of the few police departments in the area to have a forensic lab like this. This brand-new facility has given us a whole new approach to crime solving."

The lab is a large room surrounded by special new equipment that can help forensic scientists draw out fingerprints and DNA evidence from practically any crime scene object. Wet and bloody clothing, for example, can get safely processed in a drying chamber before analyzing it for blood and DNA samples; a bike can be fumigated with a glue gas that helps bring out prints, and all evidence can be meticulously photographed and documented there. The lab is equipped with one of the largest fuming chambers in the Northeast.

"We can collect all kinds of evidence here — fingerprint, ballistic, DNA, hair and fibers, glass, metal and impressions of tire treads or shoes," said Dolan the lab manager.

Superintendent Christopher Burke, head of support services with Cambridge Police, said he has noticed a marked improvement in the time it takes to analyze evidence. The lab has also improved the connection with the evidence unit. A two-way locker connecting the two units makes it easy and safe to transfer evidence.

"The quicker turnaround is helpful in our investigations and is a key to limiting the time an offender remains on the street, and the time they have to re-offend," Burke said.

The things they do in the lab are not very different from what you see on crime shows like "CSI." What is different is the steps and time it takes to analyze one piece of evidence and that's very different in real life, the forensic scientists said.

Both women had experience in forensics before they joined Cambridge Police in December 2008. Both have graduate degrees in forensic science from the University of New Haven, Conn. Dolan is a fingerprint expert and

Miller is a forensic technician. They are also continuing their education with special police, fire and FBI courses.

Dolan said she always wanted to work in law enforcement and be a part of crime scenes. Thanks to forensics developing rapidly and the popularity of crime shows, police departments are slowly seeing the need to have forensic scientists working with them in a professional capacity.

“The detectives recognize the importance of having a close working partnership with our forensic technicians. Their expertise is especially helpful at crime scenes,” said Lt. Steven J. DeMarco of Cambridge Police. “I believe [the lab and the technicians] has led to our solvability rates to multiply regarding crimes that may not have been solved through more traditional investigative methods.”

“We have a very different way of looking at crime scenes that’s different from detectives, firefighters and EMT,” Dolan said. “They see a bloody knife, we see DNA. They see blood on the wall, we see a pattern or the absence of one. We see many things that they don’t see. That’s what makes our role more important and prevalent today in police departments.”

All are thrilled with the new lab and the opportunity it gives them and have big plans for the future of the unit.

“Forensics has evolved over the years to become a very precise science,” Dolan said. “We in forensics understand the value of different types of evidence. Simply collecting is not important; we understand how it must be analyzed.”

For instance, there are precise steps involved in collecting evidence from a piece of paper found at a crime scene. The scientists displayed a mock bank robbery note and said they must go through many steps to analyze it for maximum worth. The note was then slipped into a plastic bag of iodine crystals, sealed and shaken.

Within seconds, a clear brown fingerprint magically evolved, previously unseen on the paper. The analysts then photographed it in detail and documented their findings before further processing the note for evidence.

A larger fuming chamber in the back of the lab is used to develop prints from larger porous surfaces such as backpacks or clothes.

“There is a proper sequence,” Dolan said. “If we used a hydrant on the paper first, we couldn’t use the iodine to get the print. So it’s important for folks to have this training in the lab.”

When the experts bring in a bloody knife, it is first laid out on the large table in the center of the lab and thoroughly examined and photographed.

Then it is carefully handled to retrieve blood samples via swabs dipped in sterile water and the samples sealed and sent to the state lab.

The experts then check for fingerprints on the handle. If one is visible, they can dust it with black powder to bring it out and lift it with a sticky slide to view under a loop or microscope. If prints are not visible, the knife can be fumigated to bring out prints, if any. Everything is meticulously photographed next to a scale or ruler or written down, a most time-consuming process, Miller said.

“We are concerned with details,” Dolan said. “This knife is not as important as the evidence on it.”

The two document and retrieve everything they can from the evidence, down to the skin cells and sweat stains. Everything retrieved is sealed and sent to the state lab for further analysis.

“We are making sure we get all the information we can before we get to a conclusion,” Dolan said.

Fingerprint and DNA information is eventually added to or compared on databases shared by state, city police and FBI to identify the people involved.

Because of the detailed work that they do and their special observance powers, the experts are also often called upon to testify in court on crime scenes.

“We are called upon to depict evidence in its most accurate and original position,” Dolan said. “Attorneys are asking more questions in courts, and forensics have a lot of answers.”