# Medical Examiners...

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shoulder.

Other proof Arruza provided regarding distance between shooter and victims involved a condition known as "stippling." From an intermediate range (6 - 8 inches to 3.5 feet) hot fragments of burning propellant (gunpowder) follow the bullet to the victim and produce stippling by causing pinpoint burns around the entrance wound. Again, this evidence (lack of stippling) proved the shooter was farther away from the victims than he claimed to be.

The jury found Latoya Criner guilty of murder and he was sentenced to life in prison without parole.

## A challenging job

Margarita Arruza, an attractive, self-effacing woman, was born in Cuba but grew up in Spain where her family moved when she was three years old. She earned her medical degree in Madrid, then her family immigrated to the United States and she continued her medical education, her specialty training, in Chicago.

"Pathology has mandatory rotations in several different sub-specialties," she says, "and we had a rotation in forensic pathology. I just fell in love with it; it was so challenging and so different and I just felt it was for me, so that's what I did from there on."

She moved to Jacksonville in 1989 when then-Chief ME Dr. Lipkovic hired her as an associate. She became Deputy Chief when he retired and, following his successor's retirement, was named Chief Medical Examiner in 2002.

When asked about some of the unpleasant aspects of her job, Arruza says, "To a certain extent we try to disassociate ourselves from the fact that we're working on a dead person and keep our mind focused; otherwise, we'd be crying all the time. Some cases are harder than others; children – those are definitely the ones we least like. Especially child abuse cases. Or someone we know personally – sometimes that happens. And then there are certain cases where you do everything you know to do and still don't come to a solution. Those are very frustrating. But most of the cases are OK."

She says decomposed bodies present some challenges, such as, "we know we're missing some details we normally would have in a fresh body. And the smell – your nose gets accustomed to it after a while. You go out of the room, take a shower and you're fresh."

## Highly qualified ME staff

Northeast Florida is fortunate to have Arruza, who very capably heads a highly qualified group of forensic specialists – from Associate MEs (physicians) Jesse Giles, Aurelian Nicolaescu and E. Hunt Scheuerman to autopsy technicians, forensic investigators, toxicologists and other scientists and technicians.* A new physician, Valerie Rao, will join the staff in April.

Together, the ME staff processed 1,936 cases referred to them in 2005. Arruza explains that autopsies are not performed on all the referred cases – only about 80 percent. "Some we externally inspect, maybe draw fluids for toxicology and certify the death (about 12 percent of cases); for others we request and review records – that takes a lot of time – and eventually say they are not our cases.

"About 19 percent of referred cases we investigate, usually talk to families, review medical records or discuss with the private doctors to determine if they are medical examiner cases as defined by state law."

Florida Statute 406.11 dictates the types of cases the ME's office will handle: when a person dies by criminal violence, by accident, by suicide, suddenly (when in apparent good health), unattended by a practicing physician, in prison or in police custody, and any death by suspicious or unusual circumstance.

"Rarely is an ME requested to personally visit the scene of a violent death," Arruza says. "Our investigators usually obtain the data required. Police will call us if they really don't have a good grasp of what's happening, such as if they think it is a homicide and it turns out to be a suicide. If it is something the police are not used to seeing, we see it day in and day out, so we can help. We don't go there unless we are called to the scene."

Admin Assistant Terri McCrackin, who graciously provided information and a tour of the ME facility, says when detectives anticipate a difficult prosecution, they specifically ask for Arruza to evaluate the crime scene and perform the autopsy. Prosecutors are especially grateful for her expertise, and Assistant State Prosecutor Angela Corey was pleased to offer her comments. (See sidebar)

## What happens to a body

JSO and JFRD units are first responders to the scene of a homicide or other fatality. Police officers secure the scene with crime tape to keep observers at a reasonable distance from the body, and evidence technicians and detectives process the scene, collect evidence and interview witnesses. The Medical Examiner's office is also called.

A forensic investigator responds to the scene, visually examines the body, receives details about the circumstances of the death from detectives, photographs the body and the area around it and phones the on-call medical examiner with an assessment of the situation. Based on this information, the ME authorizes release of the body, and only then is it moved from the site.

A removal service places the victim in a body bag and transports it to the ME's office located behind Shands Hospital. There the attendants move it onto a gurney-type conveyance called a tray, weigh it on scales inset in the floor and place it in the cooler, where it remains until the autopsy is performed.

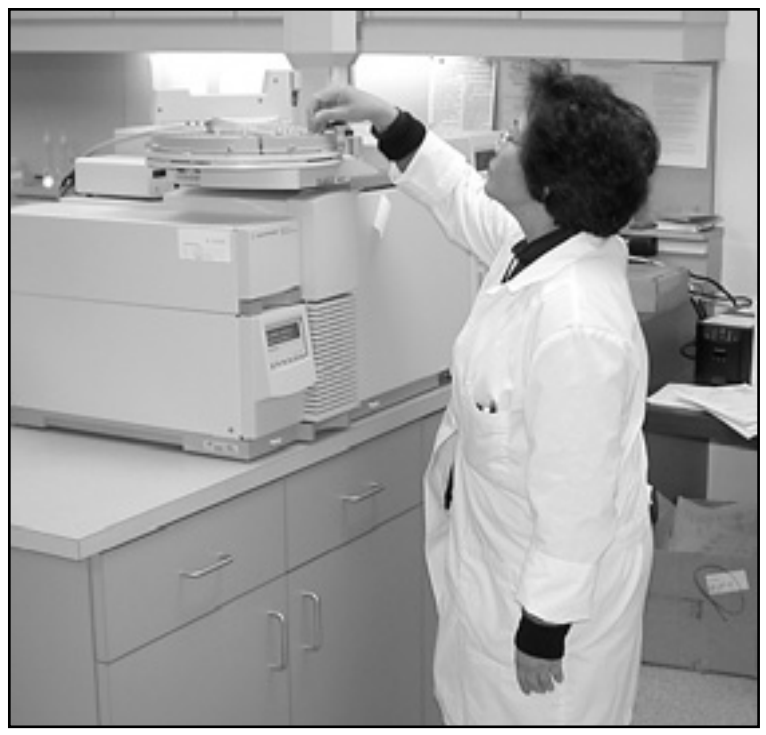
The four examiners rotate work days so at least two are in the lab every day. Each morning they review the investigators' reports about the bodies brought in overnight and perform autopsies as required. Each ME works with an autopsy technician who may assist in cleaning the body, weighing organs, procuring tissue for slides, drawing fluids for tests, and any other required tasks.

Every step of the way, all those involved with handling the body make every effort to ensure the dignity of the deceased. Only law enforcement officers and medical students are allowed to witness an autopsy.

When the autopsy is complete, the body is removed to the funeral home where, if necessary, identification is made and the family makes final arrangements for their loved one.

## Disparity between fact and fiction

As evidenced by the abundance of current TV programs on the subject – fiction and otherwise, forensic science is a fascinating aspect of today's crime-solving methods. While this genre of entertainment has enlightened the general public about DNA and AFIS and lifting fingerprints and collecting trace evidence, Arruza says there is a real disparity between TV fiction and fact.



*Toxicologist Norma Molina operates the GC/MS – gas chromatograph and mass spectrometer – a highly sophisticated piece of equipment which analyzes and identifies the presence of drugs and poisons in fluids, tissues and organs. GC sorts the molecules and MS is then used to identify each type of molecule on the basis of weight. By itself, a GC is not conclusive enough to positively identify a substance; however, if connected to an MS, when a substance emerges from the chromatograph and enters the spectrometer, it is bombarded with high energy electrons which break up the molecules. The principle is that no two substances break up in quite the same way – each has its own unique pattern – so every substance tested can be positively identified.*

"What you see on TV – that you can tell the exact time of death, for example – that doesn't happen. Nobody is that efficient. A crime doesn't always get solved in 24 hours; it takes days, weeks, to get results back. And on TV it always comes to a good conclusion; that's not the case in reality. Families of crime victims see the quick disposition of cases on TV and wonder why it takes so long to come to trial, for forensic information to come back from the lab."

How about their equipment? Arruza says they do toxicology tests and slides inhouse. "We have equipment that is very old, such as old microscopes – it's pitiful. Machines break down and we can't get parts; we have only one machine that does most of the testing. Since we have three people who work with that very sophisticated piece of equipment (the GCMS – gas chromatograph and mass spectrometer), sometimes there's a conflict. Everyone needs to use the same machine, so an additional one would greatly improve our efficiency. But even with what we have, we are doing pretty good.

"We put our requests in the budget," the personable Chief ME says. "Sometimes we get them, sometimes we don't. All this equipment is so expensive and with technology changing every day, it's hard to keep pace. But we do the best we can with what we have, and I think we do OK."

***For a complete list of the staff, visit www.coj.net/Departments/Medical+Examiner.**

"Our good relationship with the Medical Examiner's office has greatly enhanced our prosecution of homicide cases. From the crime scene, to staffings with our homicide detectives, to depositions and trials, they are ready, willing and able to help us decipher the forensic mysteries of any given homicide. Dr. Arruza is especially accommodating with both the prosecution and the defense in preparing for trial. She has literally had to "run" from one courtroom to another to testify in complicated murder trials occurring on the same day. Her intellect, demeanor on the stand, and willingness to serve our community are greatly appreciated by law enforcement and by our prosecutors. I believe her most compelling attribute is her genuine concern for victims and their families and for maintaining the integrity of the science of forensic pathology."

–Assistant State Attorney Angela Corey