U.S.News & WORLD REPORT
usnews.com

The CSI Effect: On TV, it's all slam-dunk evidence and quick convictions. Now juries expect the same thing--and that's a big problem.

By Kit R. Roane; [Dan Morrison]
Posted 4/17/05

Picture this: A middle-aged woman from out of town digs into a bowl of chili at a fast-food restaurant in California. Each bite is more delicious than the last. She chews. She savors. Then something goes terribly wrong. She spits. She screams. She vomits. All eyes focus on the table, where a well-manicured fingertip peeks out from a mound of masticated chili. Lights and sirens. Forensic experts troll for evidence. Pimple-faced fry cooks are lined up. Fingers are pointed, and fingers are counted. The nub is popped into an evidence bag to make the forensic rounds. A fingerprint is taken to run through a national database. DNA tests are done. Detectives search for clues.

If this were an episode of *CSI: Crime Scene Investigation* --and it might well become one--the well-coiffed technicians who star in the show would solve the mystery lickety-split. Fingerprints or DNA evidence would identify the victim, a leggy blond, within 45 minutes. Then, in a twist, a smudge of blood still under the nail would lead to her killer, a jealous fashion photographer, unwilling to let go of his star.

But this is real life. Anna Ayala reported her disturbing find at a Wendy's restaurant late last month. And as of last week, investigators were still stumped. Ayala hasn't confessed to any fraud. The fry cooks all had their fingers. The print wasn't a match. And the DNA test still hadn't come back from the lab. On CBS's *CSI,* the forensic science is sexy, fast, and remarkably certain, a combination that has propelled the three-show franchise to top ratings, attracting nearly 60 million viewers a week. The whole investigation genre is hot, from NBC's *Law & Order* series on down to the documentary-like re-creations of A&E's *Forensic Files.* America is in love with forensics, from the blood spatter and bone fragments of TV's fictional crime scenes to the latest thrust and parry at the Michael Jackson trial.

That's good, right? Jurors are smarter, and understaffed government crime labs are using the trend to seek more funding. But not so fast. Stoked by the technical wizardry they see on the tube, many Americans find themselves disappointed when they encounter the real world of law and order. Jurors increasingly expect forensic evidence in every case, and they expect it to be conclusive.

"Your *CSI* moment." Real life and real death are never as clean as *CSI's* lead investigator, Gil Grissom, would have us believe. And real forensics is seldom as fast, or as certain, as TV tells us. Too often, authorities say, the science is unproven, the analyses unsound, and the experts unreliable. At a time when the public is demanding *CSI* -style investigations of even common crimes, many of the nation's crime labs--underfunded, undercertified, and under attack--simply can't produce. When a case comes to court, "jurors expect it to be a lot more interesting and a lot more dynamic," says Barbara LaWall, the county prosecutor in Tucson, Ariz. "It puzzles the heck out of them when it's not."

A disappointed jury can be a dangerous thing. Just ask Jodi Hoos. Prosecuting a gang member in Peoria, Ill., for raping a teenager in a local park last year, Hoos told the jury, "You've all seen *CSI*. Well, this is your *CSI* moment. We have DNA." Specifically, investigators had matched saliva on the victim's breast to the defendant, who had denied touching her. The jury also had gripping testimony from the victim, an emergency-room nurse, and the responding officers. When the jury came back, however, the verdict was not guilty. Why? Unmoved by the DNA evidence, jurors felt police should have tested "debris" found in the victim to see if it matched soil from the park. "They said they knew from *CSI* that police could test for that sort of thing," Hoos said. "We had his DNA. We had his denial. It's ridiculous."

Television's diet of forensic fantasy "projects the image that all cases are solvable by highly technical science, and if you offer less than that, it is viewed as reasonable doubt," says Hoos's boss, Peoria State's Attorney Kevin Lyons. "The burden it places on us is overwhelming." Prosecutors have a name for the phenomenon: "the *CSI* effect."

Some of the "evidence" the *CSI* shows tout--using a wound to make a mold of a knife, or predicting time of death by looking at the rate at which a piece of metal might rust--is

blatant hokum, experts say. But more and more, police and prosecutors are waking up to the need to cater to a jury's heightened expectations. That means more visual cues, with PowerPoint and video presentations, and a new emphasis during testimony on why certain types of evidence haven't been presented. If there are no fingerprints in evidence, more prosecutors are asking investigators to explain why, lest jurors take their absence as cause for doubt.

The same goes for DNA or gunshot residue. Joseph Peterson, acting director of the Department of Criminal Justice at the University of Illinois-Chicago, says DNA is rarely culled from crime scenes and analyzed. Crime scenes today are much like they were in the 1970s, Peterson says, when his studies found that fingerprints and tool marks were the most common types of evidence left at crime scenes. Blood was found only 5 percent of the time, usually at murder scenes.

Like crime scenes, many crime labs also haven't changed that much--at least in one respect. Many are still understaffed, and they often don't receive all of the relevant physical evidence from the crime scene, either because police investigators don't know what they're looking for or because they figure--possibly wrongly--that the case is strong enough without it. A crime lab's bread and butter is testing drugs found at crime scenes, doing toxicology screens, and comparing fingerprints. DNA matches are way down the list, mainly because they're time consuming and expensive. How much time? A Cape Cod trash hauler gave police a DNA sample in March 2004. The lab was backlogged. Last week, after it was finally analyzed, he was arrested for the 2002 murder of fashion writer Crista Worthington.

Defense attorneys, predictably, are capitalizing on the popularity of shows like *CSI,* seizing on an absence of forensic evidence, even in cases where there's no apparent reason for its use. In another Peoria case, jurors acquitted a man accused of stabbing his estranged girlfriend because police didn't test her bloody bedsheets for DNA. The man went back to prison on a parole violation and stabbed his ex again when he got out--this time fatally.

The *CSI* effect was raised in the acquittal last month of actor Robert Blake in the murder of his wife. The L.A. district attorney called the jurors "incredibly stupid," but jurors

noted that the former *Baretta* star was accused of shooting his wife with an old Nazi-era pistol that spewed gunshot residue. Blake's skin and clothes, a juror told *U.S. News* , had "not one particle."

"On thin ice." Still, forensic evidence and expert testimony can add a lot of weight. Confronted with a possible fingerprint or DNA match, many defendants will plead guilty instead of risking a trial and the possibility of a heavier penalty.

At trial, many juries tend to believe forensic experts and the evidence they provide--even when they shouldn't. Sandra Anderson and her specially trained forensic dog, Eagle, are a case in point. Dubbed a canine Sherlock Holmes, Eagle and his trainer were the darlings of prosecutors and police across the country. They appeared on TV's *Unsolved Mysteries* and headlined forensic science seminars. The dog seemed to have a bionic nose, finding hidden traces of blood evidence, which Anderson duly corroborated in court. In one case, Eagle's million-dollar nose gave police enough for a search warrant after he found damning evidence in the house of a biochemist suspected of murdering his wife. Plymouth, Mich., Police Lt. Wayne Carroll declared at the time: "Before we brought that dog down there, we were on thin ice." Anderson and Eagle, however, were frauds. After she admitted planting blood on a hacksaw blade during the investigation of the suspect, Azizul Islam, he was granted a new trial last year. It was one of several cases in which Anderson faked evidence. She is now serving a 21-month prison term after pleading guilty to obstruction of justice and making false statements. Lawyers and forensic experts say Anderson is just one of the more bizarre cases of forensic specialists lying under oath, misreading test results, or overstating evidence.

In recent years, the integrity of crime labs across the country, including the vaunted FBI crime lab, have come under attack for lax standards and generating bogus evidence. One problem is that crime labs don't have to be accredited. All DNA labs seeking federal funding will have to be accredited by next year, but roughly 30 percent of the publicly funded crime labs operating in the United States today have no certification, a recent Justice Department study found. The FBI's lab gained accreditation in 1998, after it was embarrassed by a series of foul-ups. A Houston lab sought accreditation this year, following a scandal that has so far resulted in the release of two men from prison and cast doubt on the lab's other work.

Dozens of coroners, crime lab technicians, police chemists, forensic anthropologists, crime-reconstruction experts, and other forensic specialists, meanwhile, have been fined, fired, or prosecuted for lying under oath, forging credentials, or fabricating evidence. It's hard to find anyone in law enforcement who can't recite a story of quackery on the stand or in the lab. Forensic practitioners say the popularity of the field may make things even worse, noting that new forensics-degree programs are cropping up all over the place, some turning out questionable candidates. "For some reason, the forensic sciences have always had their fair share of charlatans," says Max Houck, director of the Forensic Science Initiative at West Virginia University. "Because of the weight the analysis is now given, professional ethics and certification of labs has never been more important."

"Dead-bang evidence." One of the most infamous charlatans worked his magic just down the road from Houck at the West Virginia State Police lab. Fred Zain, who died in 2002, was a forensics star, a lab chemist who testified for prosecutors in hundreds of cases in West Virginia and Texas, sending some men to death row. No one ever bothered to look at his credentials--including the fact that he had failed organic chemistry--or review his test results. When two lab workers complained that they had seen Zain record results from a blank test plate, they were ignored. Zain was undone when DNA test results performed on Glen Woodall--serving a prison term of 203 to 335 years--proved that he could not have committed two sexual assaults for which he'd been convicted. Zain had told the jury that the assailant's blood types "were identical to Mr. Woodall's." After Woodall's conviction was overturned, in 1992, the West Virginia Supreme Court of Appeals ordered a full review of Zain's work. Its conclusion? The convictions of more than 100 people were in doubt because of Zain's "long history of falsifying evidence in criminal prosecutions." Nine more men have since had their convictions overturned.

Forensic science experts say the solution is to tighten standards for experts and increase funding for crime labs. A consortium of forensic organizations is lobbying Congress now to do both. "In many places, crime labs are the bastard stepchildren of public safety," says Barry Fisher, a member of the Forensic Science Consortium and director of the L.A. County Sheriff's Department crime lab. Asked about the importance of mandatory certification, he adds: "I don't know if I would go to a hospital that wasn't accredited. The same goes with labs."

Some forensic experts, however, question the value of certification. Psychologist Steve Eichel, a longtime critic of what he calls "checkbook credentials," secured credentials for his cat--"Dr. Zoe D. Katze" --from four major hypnotherapy and psychotherapy associations. Critics have questioned the rigor of the American College of Forensic Examiners International, the largest forensic certifier in the country. Its founder, Robert O'Block, who was charged with plagiarism and fired from the criminal justice department at Appalachian State University shortly before starting the organization, strongly denies assertions that he runs a certification mill, blaming those accusations on disgruntled competitors; the Appalachian incident, he says, was retaliation for reporting improper academic practices.

Even accredited crime labs, however, can make mistakes. Most publicly accredited labs gauge their proficiency through declarative tests, where lab workers know they're being tested. Although most labs do well on such tests, some experts question their ability to judge labs' day-to-day performance. And even in declarative tests, deficiencies can be glaring. According to 2004 proficiency results from one private testing service reviewed by *U.S. News,* a few labs failed to properly match samples on simple DNA tests, mysteriously came to the right result after making the wrong interpretation of the data, or accidentally transposed the information from one sample onto another. In a ballistics test, one lab matched a slug with the wrong test gun.

Such errors can have real-world consequences in court. In 1999, a Philadelphia crime lab accidentally switched the reference samples of a rape suspect and the alleged victim, then issued a report pointing to the defendant's guilt. Last year, a false fingerprint match led the FBI to wrongfully accuse an Oregon lawyer--and converted Muslim--of complicity in the al Qaeda-linked Madrid train bombings. The FBI later blamed the foul-up on the poor quality of the fingerprint image. "There are a number of cases that deal with what on the surface ought to be dead-bang evidence," says Fisher. "But it turns out it was the wrong result. Improper testing or improper interpretation of data left the innocent convicted."

For all the setbacks and scandals, science has made considerable progress in the courts since the advent of forensic investigation. In the 1600s, the evidence against two London "witches" accused of causing children to vomit bent pins and a twopenny nail was . . . a

bunch of bent pins and a twopenny nail. So it must have seemed fairly revolutionary in the 1800s when a Brussels chemist named Jean Servais Stas devised a way to separate a vegetable poison from the stomach of a countess's brother to prove how he had been killed. Or when an English investigator around the same time solved the case of a murdered maid by matching a corduroy patch left in the mud at the crime scene to the pants of a laborer working some nearby fields.

"Obvious" problems. That doesn't mean forensics can always be believed, however, even when the data are accurate. As Sherlock Holmes said, "There is nothing more deceptive than an obvious fact." DNA is a case in point. While DNA testing is the most accurate of the forensic sciences, experts can make vastly different interpretations of the same DNA sample. Criminal justice experts say most lawyers and judges don't know enough about any of the forensic sciences to make an honest judgment of the veracity of what they are told. Prosecutor Mike Parrish in Tarrant County, Texas, decided to get a second opinion on his DNA evidence in a capital murder case three years ago after the local police lab amended its result to more strongly link his suspect to the crime. Suspicious, Parrish had the sample reanalyzed by the county medical examiner, whose results were much less definitive. In the end, Parrish said, because of the conflicting DNA reports, he chose not to seek the death penalty.

Other forensic tests are even more open to interpretation. Everything from fingerprint identification to fiber analysis is now coming under fire. And rightly so. The science is inexact, the experts are of no uniform opinion, and defense lawyers are increasingly skeptical. Fingerprint examiners, for instance, still peer through magnifying glasses to read faint ridges.

Many of these techniques and theories have never been empirically tested to ensure they are valid. During much of the past decade, coroners have certified the deaths of children who might have fallen down steps or been accidentally dropped as "shaken baby" homicides because of the presence of retinal hemorrhages--blood spots--in their eyes. Juries bought it. Noting that new research casts grave doubt on the theory, Joseph Davis, the retired director of Florida's Miami-Dade County Medical Examiner's Office and one of the nation's leading forensics experts, compares proponents of shaken-baby

syndrome to "flat Earthers" and says its use as a prosecution tool conjures up "shades of Salem witchcraft" trials.

The list goes on. Ear prints, left behind when a suspect presses his ear to a window, have been allowed as evidence in court, despite the fact that there have been no studies to verify that all ears are different or to certify the way ear prints are taken. The fingerprint match, once considered unimpeachable evidence, is only now being closely scrutinized. The National Institute of Justice offered grants to kick-start the process this year. Other "experts" have pushed lip-print analysis, bite-mark analysis, and handwriting analysis with degrees of certainty that just don't exist, critics say.

Microscopic hair analysis was a staple of prosecutions until just a few years ago and was accorded an unhealthy degree of certitude. "Hair comparisons have been discredited almost uniformly in court," says Peterson of the University of Illinois-Chicago. "There are many instances where science has not come up to the legal needs," adds James Starrs, professor of forensic sciences and law at George Washington University. Everyone, including the jury, wants certainty. But it seldom exists in forensics. So the expert, says Starrs, "always needs to leave the possibility of error."

MORE ONLINE

Details on forensics, the law, and how they intersect are available in a free database at the National Clearinghouse for Science, Technology, and the Law, a program of the National Institute of Justice, at **ncstl.org/**

This story appears in the April 25, 2005 print edition of U.S. News & World Report.