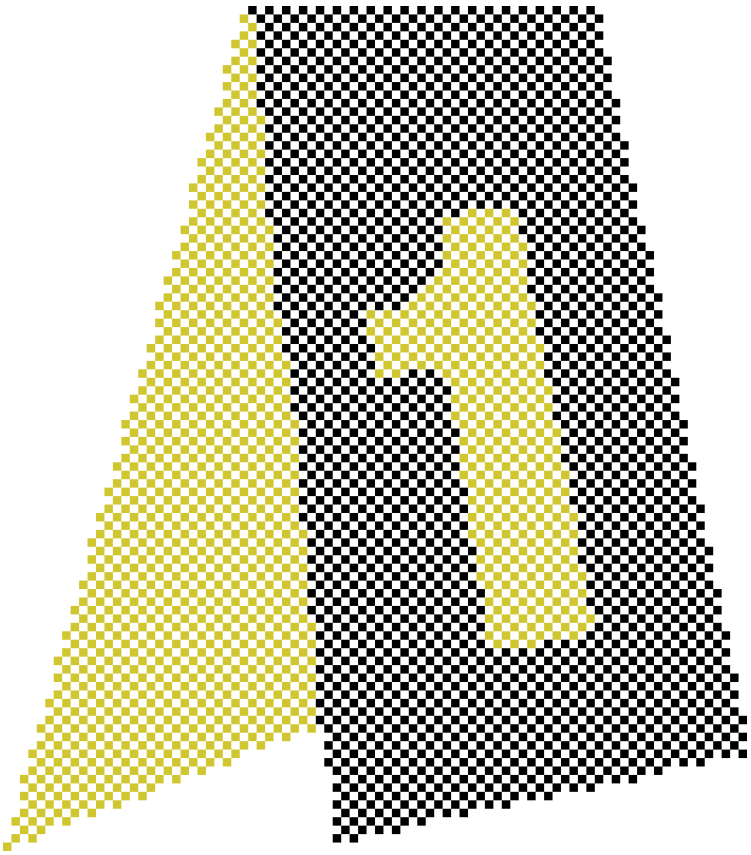

A Simplified Guide To Crime Scene Investigation

Introduction

A body washes up on a lonely stretch of beach. A fire in a methamphetamine lab devastates an apartment building. A car accident claims the life of a driver during her trip home. These are all potential crime scenes.

By conducting a systematic examination of these areas, crime scene investigators uncover the physical evidence to help identify what happened and who was involved. This process must be conducted carefully and thoroughly to ensure that crucial evidence is collected and fragile evidence is not destroyed in the process.

At a scene, the case investigator and crime scene personnel work together to: define and secure areas that may contain evidence; examine and document the scene; collect physical evidence; and preserve, package and submit the evidence to the laboratory for analysis. With these key pieces of evidence, the investigator can attempt to reconstruct the elements of the crime.

The more thorough the crime scene team is at conducting its job, the more likely it is to accurately determine the facts of the case. The quality of the evidence and the manner in which it is handled will also impact the ability of the attorneys to argue the facts of the case and ultimately the jurors' ability to come to conclusions regarding guilt or innocence.

Principles of Crime Scene Investigation

The key principle underlying crime scene investigation is a concept that has become known as *Locard's Exchange Principle*. It states that whenever someone enters or exits an environment, something physical is added to and

removed from the scene. This principle is generally summed up by stating: "Every contact leaves a trace."

The logic behind this principle allows investigators to link suspects to victims, to physical objects, and to scenes. Any evidence that can link a person to the scene is referred to as associative evidence. This may include items such as fingerprints, blood and bodily fluids, weapons, hair, fibers and the like. This type of evidence answers the question "Who did this?"

While associative evidence links people to the place of the crime, reconstructive evidence allows investigators to gain an understanding of the actions that took place at the scene. A broken window, a blood spatter pattern, bullet paths and shoe prints can all reveal what actually happened. This type of evidence answers the question, "How did it happen?"

To help establish the linkage of people and things to a scene, the investigator may also collect known substances, called control samples. These can be items such as fibers from carpeting at the scene, glass fragments, soil, vegetation and other trace evidence. If these are found on the suspect's clothing, in their vehicle or at their residence, it could provide circumstantial evidence linking the person to the scene.

For example, police are called to a residential neighborhood where a home invasion and burglary has just occurred. Investigators collect glass fragments from a shattered cabinet door with a distinct pattern etched into the glass. A tip leads investigators to a local man with a known history of burglary. Examination of the suspect's clothing yields glass fragments with the same distinct pattern as the smashed cabinet doors.

Eliminating people who could not be the perpetrator is also important. Control samples of fingerprints and DNA are often collected from any person(s) who have access to the scene who are not considered suspects.

Gauging the Value of Evidence

It is unique - If an item is found that helps narrow the possibilities of who might be considered a suspect, or the manner in which a crime was committed, this evidence would be of use. Is an impression from a vehicle tire found in the dirt at the scene? The tread impression can be compared to others to determine the type of tire that was on the car. Is a shoe print left in the soil? The tread may help to identify the size and type of shoes it came from and the wear pattern could be used to match it to a specific pair.

It has a low probability of occurring by chance - Considering the mathematical probabilities will help to determine the odds that a piece of physical evidence found at the scene could appear merely by coincidence. If DNA evidence found at the scene matches a suspect, the chances are exceedingly low that another person could have left this sample. But even evidence that has a much higher probability—for instance, a common type of shoeprint that is left in the soil—is still valuable. When combined with other high probability evidence, these can help narrow the list of possible parties and build a compelling case.

It is inconsistent - If an item is found that is out of place or inconsistent with the setting, or is out of character for the victim—for instance if the victim was a non-smoker but a cigarette butt is found at the scene—this could be an important bit of evidence.

(Courtesy Becky Carter, CEP)

It is a physical match - If trace evidence is found on the suspect or in his possession that matches something at the scene, this makes this item valuable as evidence. For instance, broken plastic parts or a broken fingernail that can be matched by fracture marks can demonstrate that two pieces were once a part of the same item.

Why and when is a crime scene investigation conducted?

Collecting physical evidence from a scene can help an investigator recreate the crime scene and establish the sequence of events. Physical evidence can also corroborate statements made by the victim, suspects and witnesses.

In practice, a wide range of scenes are secured, documented and investigated including the scenes of:

- burglaries
- violent crimes
- suicides
- fires
- auto thefts
- auto accidents

The type of case being investigated dictates the type of evidence that an investigator will attempt to locate and collect. However, as the facts of the case slowly get pieced together, this may change the theory of what occurred. Investigators may discover that several crimes have been

committed instead of just one, or they may discover multiple scenes that require investigation.

In some cases, an investigator may not be able to examine the primary crime scene because it is unknown; for instance, if a body is found buried in a field far away from where the death actually took place. The area where the body is discovered is referred to as a secondary crime scene.

How It's Done

Samples That May Be Collected at a Crime Scene

A wide variety of physical evidence can be collected at a scene that is deemed valuable ("probative") for collection and investigation:

- biological evidence (e.g., blood, body fluids, hair and other tissues)
- latent print evidence (e.g., fingerprints, palm prints, foot prints)
- footwear and tire track evidence
- trace evidence (e.g., fibers, soil, vegetation, glass fragments)
- digital evidence (e.g., cell phone records, Internet logs, email messages)
- tool and tool mark evidence
- drug evidence
- firearm evidence

The type of evidence collected will vary with the type of crime. In the case of a burglary, for example, it would be common to perform tasks in the order listed below. This will help ensure that evidence isn't inadvertently damaged or destroyed:

1. Photograph and document the scene
2. Collect trace materials (especially from probable points of entry)
3. Collect low-level DNA evidence by swabbing areas of likely contact
4. Collect other items that may contain biological evidence
5. Locate and collect latent fingerprints

Who Examines Crime Scenes

The number and type of professional(s) responsible for investigating a scene and collecting evidence largely depends on the type of crime and the resources of the law enforcement agency. Larger agencies often have dedicated, highly trained crime scene specialists, while smaller agencies may require that first responders or detectives process the scene in addition to their other duties.

In many instances, a case will be investigated by a detective who is responsible for interviewing persons of interest and victims, pursuing leads and piecing together the information that is developed from the materials collected at the scene. The detective works in tandem with a team of crime scene personnel who search the scene and collect the evidence. The crime scene investigation team may consist of crime scene photographers and evidence collection personnel specializing in gathering specific evidence such as latent prints, DNA, trace evidence and the like.

In the United States, there are no national requirements that must be met to serve as a crime scene investigator; however, investigators can achieve four levels of certification through the International Association for Identification (IAI) that demonstrate their proficiency:

- Certified Crime Scene Investigator
- Certified Crime Scene Analyst
- Certified Crime Scene Reconstructionist
- Certified Senior Crime Scene Analyst

Other certifications commonly achieved include the Evidence Photographer Certification from the Evidence Photographers International Council, Inc. and Board Certified Medicolegal Death Investigator of the American Board of Medicolegal Death Investigators (ABMDI).

How a Crime Scene Investigation is Conducted

The circumstances that investigators encounter at the scene will largely dictate the approach used to process the scene. A homicide will likely require different treatment and processing than a burglary. However, to ensure a thorough process, the seven steps outlined below are often followed. These steps can be conducted in a different order, combined or even skipped altogether to meet the needs of the situation.

1. Establish the scene dimensions and identify potential safety and health hazards - Investigators initially locate the “focal point” of the scene, the main area of disturbance. This could be a ransacked bedroom, the area where an attack occurred, or the room in which a victim was found. Radiating out from that point, investigators establish an area that is sizeable

enough to likely contain all relevant physical evidence that may be present. It is easier for investigators to condense the size of a scene at a later point than to discover that sensitive evidence outside the scene has been damaged or destroyed by other responders, media or onlookers. In addition, potential paths of perpetrator entry/exit are identified. Safety is of paramount importance during the initial approach to the scene. Weapons, biohazards, chemical hazards and even intentional traps could be waiting for responders. If medical, fire or coroners will be on scene, they will need to be advised regarding evidentiary issues as well.

2. Establish security - According to Locard's Exchange Principle, every person who enters or exits the scene will add or subtract material from the crime scene, so it's crucial to quickly secure the area. To control access, the scene may be cordoned off with yellow crime scene tape, cones or by other means. In addition, a common entryway is often established that all crime scene personnel will use to enter and exit the scene and all people entering or leaving the scene are documented once the boundaries have been established. Additional areas for consultation and evidence storage may also be established if necessary.

3. Plan, communicate and coordinate - Before collecting evidence, investigators must first develop a theory regarding the type of offense that occurred. Knowing the type of crime will help investigators anticipate the evidence that could be present. This may require gathering information from witnesses or persons of interest. Based on this information, the crime scene team will develop an evidence-collection strategy taking into consideration weather conditions, time of day and other factors. Additional forensic resources may also be requested to handle special situations.

4. Conduct a primary survey/walkthrough - An initial survey of the scene is then conducted to prioritize evidence collection. During this walkthrough, the lead investigator will identify potentially valuable evidence, take notes and capture initial photographs of the scene and the evidence. The crime scene is documented to record conditions such as whether lights were on or off, the position of shades and doors, position of movable furniture, any smells present, the temperature of the scene, etc. To facilitate this process, crime scene specialists may create an evidence-free pathway leading to the primary area of interest by conducting a thorough sweep for evidence in that area.

5. Document and process the scene - With a plan in place, the crime scene team conducts a thorough, coordinated investigation of the scene, collecting all probative evidence. This entails detailed documentation with digital and video cameras or, if available, a 3-D scanner. For some situations, sketches and diagrams are also created. During the evidence-collection process, it is

crucial that the crime scene investigator follow proper procedures for collecting, packaging and preserving the evidence, especially if it is of a biological nature. Biological evidence can be destroyed or damaged by weather conditions, individuals can inadvertently contaminate it, or it can be overlooked entirely if alternate light sources are not used to inspect the scene.

6. Conduct a secondary survey/review - To ensure that the scene has been thoroughly searched, a second survey of the area is conducted as a quality control step.

7. Record and preserve evidence - To make certain that all evidence is accounted for, an inventory log is created. The descriptions recorded into the log must match the photo of the evidence taken at the scene and the description included in the crime scene report. For instance, if a gun is collected, the serial number of the firearm in the evidence log must match the serial number shown in the photo that was taken at the scene. This paper trail establishes the chain of custody that will follow the evidence throughout the lifecycle of the case.

How and Where Tests on the Evidence are Conducted

The most probative evidence will be sent to either a forensic laboratory or, if the laboratory does not have an expert in that forensic discipline, to an outside analyst for examination. To help identify the evidence that is most valuable, the crime scene personnel may conduct initial screening tests, called presumptive tests, at the scene. These tests can be useful in determining the type of substance present—whether it's a toxin or a drug, a stain that contains body fluids, or even whether a dried red substance found in the kitchen is blood or ketchup.

Presumptive tests allow investigators to narrow the field of possibilities to a certain class of substance, but they are not specific enough to confirm the presence of specific compounds. In addition to helping provide clues to

indicate how the crime occurred and who may have been involved, presumptive tests can also help reduce the quantity of evidence that is submitted to the lab to include only the most important items. This helps to expedite processing at the laboratory.

As technology advances and devices become more portable and affordable, additional testing of evidence will likely be conducted at the scene.

FAQs

What kind of results can be expected from the crime scene investigation process?

A crime scene investigation should provide detailed documentation of the condition of the scene and a collection of evidentiary items that can be analyzed to assist the investigation. As forensic technologies and laboratory techniques continue to improve and become more sophisticated, the value of the trace and biological evidence that is collected at a scene has increased enormously. This is especially true in the case of DNA evidence.

With DNA profiling, even the smallest amounts of biological evidence can be used to link an individual to a crime scene.

However, unlike popular TV shows where the evidence is processed and the perpetrator is quickly brought to justice, the criminal investigation process takes time. The initial crime scene investigation is just the beginning of what could be a lengthy process.

It is important to remember that while the physical evidence collected at the scene can reveal numerous powerful facts in the case, the case investigator also relies on other types of evidence including eyewitness testimony to piece together the full picture of the crime.

What are the limitations of the crime scene investigation process?

The portrayal of crime scenes in the popular media may provide the impression that every scene is an orderly, perfectly secured area that can be thoroughly scoured for every piece of crucial evidence. In reality, crime scenes can be emotionally charged or even chaotic. In the case of outdoor scenes, inclement weather conditions can quickly damage evidence and create additional challenges for the investigator.

While a thorough examination of the scene can reveal much about what transpired, the evidence must first be analyzed by a forensic scientist in a laboratory setting before conclusive facts can be determined. In addition, just because DNA or fingerprints are collected at the scene, an investigation may not be able to identify the perpetrator if there are no suspects or this information doesn't match any existing profiles available in law enforcement databases.

The ability of investigators to collect certain evidence may also be limited if, by collecting one type of evidence, they must compromise another. For example, swabbing a knife found near the victim at a murder scene for blood or DNA could potentially destroy latent fingerprints present on the knife.

How is quality control and quality assurance performed?

Each step of a crime scene investigation, from the initial scene survey to the submission of evidence to the forensic laboratory, is designed to ensure a thorough, high-quality investigation.

As a final quality assurance step before taking down the crime tape and releasing the scene, a debriefing is conducted to ensure the investigation of the area is complete. During this review, the team discusses the evidence that was collected, any notable findings, the laboratory tests that may be required, the order in which evidence should be tested and any post-scene responsibilities.

The lead investigator then directs a walk-through to visually inspect each area, ensuring that all collected evidence is accounted for and any materials or conditions that may pose hazards are addressed.

One crucial aspect of quality assurance for physical evidence is chain of custody. Ensuring a seamless chain of custody helps make certain that all evidence was handled properly and there was no opportunity for tampering to occur. It is imperative that a seamless chronological record be created indicating each person who takes possession of a piece of evidence, the duration of custody and the security of the storage conditions. If this chain is broken at any time or can be shown to have gaps, the value of the evidence could be diminished at trial.

Once evidence is submitted to the forensic laboratory, there are policies and procedures in place governing the facilities and equipment, methods and procedures, and analyst qualifications and training. Depending on the state in which it operates, a crime laboratory may be required to achieve accreditation to verify that it meets quality standards. There are two

internationally recognized accrediting programs focused on forensic laboratories: The American Society of Crime Laboratory Directors Laboratory Accreditation Board (**http://www.ascld-lab.org/**) and ANSI-ASQ National Accreditation Board / FQS (**http://www.forquality.org/**)

What information does the report include and how are the results interpreted?

A crime scene report is often referred to as a crime scene supplement because it supplements the initial report completed by the investigating officer. The crime scene supplement report contains information such as:

- Date/time when technicians arrive
- Weather conditions at the scene
- Perpetrator's point of entry and exit (if this can be determined)
- Theory about perpetrator's movements/actions
- List of evidence collected
- List of photos/videos taken
- Vehicle descriptions
- Emergency medical personnel documents
- Sketches/diagrams of the scene
- List of related subjects (suspects, victim, others involved)

Are there any misconceptions or anything else about crime scene investigation that would be important to the non-scientist?

Due to the popularity of crime scene television dramas, misconceptions abound regarding this area of forensic investigation. For example, crime scene personnel usually don't also work in the forensic laboratory as well.

The depiction of a crime scene investigator retrieving the evidence, whisking it back to the lab for analysis and solving the crime is far from reality. In addition, analysts routinely specialize in one particular area of examination. A DNA analyst won't likely be called to examine fingerprints, for example. In addition, the majority of crime scenes investigated are not of a high-profile nature, like a homicide case. Investigators spend the majority of their time collecting evidence from scenes of burglaries, robberies or lesser crimes. Crime scene investigation is definitely not a glamorous activity, unlike how it is often portrayed in popular culture.

While some of the crime scene techniques seen on television are inaccurate or overdramatized, new tools are continually being introduced to allow crime scene personnel to more thoroughly examine, discover and recover evidence from a scene. The advent of alternate light sources has helped technicians find biological evidence much more easily, and the introduction of 3D-laser scanning technology has made it much easier to thoroughly and accurately document crime scenes. But even with these advanced tools and technology, crime scene investigation relies primarily on the skills and knowledge of the investigators and forensic scientists involved.

Common Terms

A full glossary of crime scene investigation terms maintained by the National Institute of Justice is available online (**http://www.nij.gov/topics/law-enforcement/investigations/crime-scene/guides/glossary.htm**).

Alternate light source - Special lighting device that produces visible and invisible light at various wavelengths to help investigators locate and visually enhance items of evidence (e.g., fluids, fingerprints, clothing fibers).

Associative evidence - any evidence that can link a person or an item to the scene of the crime.

Biological evidence - physical evidence such as bodily fluids that originated from a human, plant or animal.

Chain of custody - The process used to maintain and document the chronological history of the evidence. Documents record the individual who collects the evidence and each person or agency that subsequently takes custody of it. This chain of custody verifies that the evidence being analyzed is the same evidence found at the scene and helps ensure there was no opportunity for the evidence to be tampered with.

Contamination - The unwanted transfer of material from another source to a piece of physical evidence. The inadvertent touching of a weapon, thereby adding fingerprints to it is an example of evidence contamination.

Control sample - material of a known source that presumably was uncontaminated during the commission of the crime.

Cross-contamination - The unwanted transfer of material between two or more sources of physical evidence. For example, improperly collecting biological evidence such as blood could lead to one sample mixing with another sample and contaminating both.

Elimination sample - material of a known source taken from a person who had lawful access to the scene.

First responders - The initial responding law enforcement officer(s) and/or other public safety official(s) or service provider(s) arriving at the scene prior to the arrival of the investigator(s) in charge.

Fluorescent powders - Powder containing fluorescent chemicals that is applied to a surface to reveal latent prints; used in conjunction with an alternate light source.

Impression evidence - Objects or materials that have retained the characteristics of other objects that have been physically pressed against them.

Latent print - A fingerprint, palm print or footprint that is not readily visible under normal lighting.

Locard's Exchange Principle - the theory that every person who enters or exits an area will deposit or remove physical material from the scene.

Other responders - Individuals who are involved in an aspect of the crime scene, such as perimeter security, traffic control, media management, scene processing, and technical support, as well as prosecutors, medical personnel, medical examiners, coroners, forensic examiners, evidence technicians, and fire and rescue officers.

Presumptive test - a test that is typically conducted at a crime scene that provides investigators with basic information regarding the compound in question. Presumptive tests can typically reveal the class of evidence, but are unable to confirm the specific compounds of which it is comprised.

Probative - possessing the potential to provide details that are valuable to an investigation.

Reconstructive evidence - reconstructive evidence allows investigators to gain an understanding of the actions that took place at the scene; a broken window, a blood spatter pattern, bullet paths and shoe prints.

Reference sample - material from a verifiable/documented source which, when compared with evidence of an unknown source, shows an association or linkage between an offender, crime scene, and/or victim.

Trace evidence - Physical evidence that results from the transfer of small quantities of materials (e.g., hair, textile fibers, paint chips, glass fragments, gunshot residue particles).

Transient evidence - Evidence which by its very nature or the conditions at the scene will lose its evidentiary value if not preserved and protected (e.g., blood in the rain).

Unknown/questioned sample - evidence of unknown origin; these samples could be found at a crime scene, transferred to an offender during commission of a crime, or recovered from more than one crime scene.

Resources & References

You can learn more about this topic at the websites and publications listed below.

Resources

CRIME SCENE INVESTIGATION, A GUIDE FOR LAW ENFORCEMENT (**https://www.ncjrs.gov/pdffiles1/nij/200160.pdf**) PDF Document

The CSI Effect Theory (**http://projects.nfstc.org/csieffect/**) (interactive website)

American Board of Medicolegal Death Investigators (**http://medschool.slu.edu/abmdi/**)

References

Adams, T; Krutsinger, J. **CRIME SCENE INVESTIGATION**; Prentice Hall: Upper Saddle River, NJ. 2000

CRIME SCENE INVESTIGATION, (**https://www.ncjrs.gov/pdffiles1/nij/200160.pdf**) A Reference for Law Enforcement Training; U.S. Department of Justice, Office of Justice Programs, National Institute of Justice, Washington, D.C. (2004).

Essentials of Crime Scene Investigation (online training program). National Forensic Science Technology Center, Largo, FL (2011).

Ritter, N. **DNA SOLVES PROPERTY CRIMES (BUT ARE WE READY FOR THAT?)** (**http://www.nij.gov/journals/261/dna-solves-property-crimes.htm**). NIJ Journal. [Online] 2010 (accessed April 28, 2012)

Acknowledgments

The authors wish to thank the following for their invaluable contributions to this forensic guide:

David Sylvester, *Chief Projects Officer*, National Forensic Science Technology Center

Greg Mason, *Forensic Science Supervisor*, Pinellas County Sheriff's Office

John Black, *Senior Consultant*, Ron Smith and Associates, Inc.

Frank Fitzpatrick, *Forensic Consultant*

Forensic Evidence Admissibility and Expert Witnesses

How or why some scientific evidence or expert witnesses are allowed to be presented in court and some are not can be confusing to the casual observer or a layperson reading about a case in the media. However, there is significant precedent that guides the way these decisions are made. Our discussion here will briefly outline the three major sources that currently guide evidence and testimony admissibility.

The *Frye* Standard – Scientific Evidence and the Principle of General Acceptance

In 1923, in *Frye v. United States*[1], the District of Columbia Court rejected the scientific validity of the lie detector (polygraph) because the technology did not have significant general acceptance at that time. The court gave a guideline for determining the admissibility of scientific examinations:

Just when a scientific principle or discovery crosses the line between the experimental and demonstrable stages is difficult to define. Somewhere in this twilight zone the evidential force of the principle must be recognized, and while the courts will go a long way in admitting experimental testimony deduced from a well-recognized scientific principle or discovery, the thing from which the deduction is made must be **sufficiently established to have gained general acceptance** *in the particular field in which it belongs.*

Essentially, to apply the "*Frye* Standard" a court had to decide if the procedure, technique or principles in question were generally accepted by a meaningful proportion of the relevant scientific community. This standard prevailed in the federal courts and some states for many years.

Federal Rules of Evidence, Rule 702

In 1975, more than a half-century after *Frye* was decided, the Federal Rules of Evidence were adopted for litigation in federal courts. They included rules on expert testimony. Their alternative to the *Frye* Standard came to be used more broadly because it did not strictly require general acceptance and was seen to be more flexible.

[1] 293 Fed. 1013 (1923)

The first version of Federal Rule of Evidence 702 provided that a witness who is qualified as an expert by knowledge, skill, experience, training, or education may testify in the form of an opinion or otherwise if:

a. the expert's scientific, technical, or other specialized knowledge will help the trier of fact to understand the evidence or to determine a fact in issue;
b. the testimony is based on sufficient facts or data;
c. the testimony is the product of reliable principles and methods; and
d. the expert has reliably applied the principles and methods to the facts of the case.

While the states are allowed to adopt their own rules, most have adopted or modified the Federal rules, including those covering expert testimony.

In a 1993 case, *Daubert v. Merrell Dow Pharmaceuticals, Inc.,* the United States Supreme Court held that the Federal Rules of Evidence, and in particular Fed. R. Evid. 702, superseded *Frye's* "general acceptance" test.

The *Daubert* Standard – Court Acceptance of Expert Testimony

In *Daubert* and later cases[2], the Court explained that the federal standard includes general acceptance, but also looks at the science and its application. Trial judges are the final arbiter or "gatekeeper" on admissibility of evidence and acceptance of a witness as an expert within their own courtrooms.

In deciding if the science and the expert in question should be permitted, the judge should consider:

- What is the basic theory and has it been tested?
- Are there standards controlling the technique?
- Has the theory or technique been subjected to peer review and publication?
- What is the known or potential error rate?
- Is there general acceptance of the theory?
- Has the expert adequately accounted for alternative explanations?
- Has the expert unjustifiably extrapolated from an accepted premise to an unfounded conclusion?

The *Daubert* Court also observed that concerns over shaky evidence could be handled through vigorous cross-examination, presentation of contrary evidence and careful instruction on the burden of proof.

[2] The "Daubert Trilogy" of cases is: **DAUBERT V. MERRELL DOW PHARMACEUTICALS**, **GENERAL ELECTRIC CO. V. JOINER** and **KUMHO TIRE CO. V. CARMICHAEL**.

In many states, scientific expert testimony is now subject to this *Daubert* standard. But some states still use a modification of the *Frye* standard.

Who can serve as an expert forensic science witness at court?

Over the years, evidence presented at trial has grown increasingly difficult for the average juror to understand. By calling on an expert witness who can discuss complex evidence or testing in an easy-to-understand manner, trial lawyers can better present their cases and jurors can be better equipped to weigh the evidence. But this brings up additional difficult questions. How does the court define whether a person is an expert? What qualifications must they meet to provide their opinion in a court of law?

These questions, too, are addressed in **Fed. R. Evid. 702**. It only allows experts "qualified … by knowledge, skill, experience, training, or education." To be considered a true expert in any field generally requires a significant level of training and experience. The various forensic disciplines follow different training plans, but most include in-house training, assessments and practical exams, and continuing education. Oral presentation practice, including moot court experience (simulated courtroom proceeding), is very helpful in preparing examiners for questioning in a trial.

Normally, the individual that issued the laboratory report would serve as the expert at court. By issuing a report, that individual takes responsibility for the analysis. This person could be a supervisor or technical leader, but doesn't necessarily need to be the one who did the analysis. The opposition may also call in experts to refute this testimony, and both witnesses are subject to the standard in use by that court (*Frye, Daubert*, Fed. R. Evid 702) regarding their expertise.

Each court can accept any person as an expert, and there have been instances where individuals who lack proper training and background have been declared experts. When necessary, the opponent can question potential witnesses in an attempt to show that they do not have applicable expertise and are not qualified to testify on the topic. The admissibility decision is left to the judge.

Additional Resources

Publications:

Saferstein, Richard. **CRIMINALISTICS: AN INTRODUCTION TO FORENSIC SCIENCE**, Pearson Education, Inc., Upper Saddle River, NJ (2007).

McClure, David. Report: Focus Group on Scientific and Forensic Evidence in the Courtroom (online), 2007, **https://www.ncjrs.gov/pdffiles1/nij/grants/220692.pdf** (accessed July 19, 2012)

Acknowledgements

The authors wish to thank the following for their invaluable contributions to this guide:

Robin Whitley, *Chief Deputy*, Appellate Division, Denver District Attorney's Office, Second Judicial District

Debra Figarelli, *DNA Technical Manager*, National Forensic Science Technology Center, Inc.

About This Project

This project was developed and designed by the National Forensic Science Technology Center (NFSTC) under a cooperative agreement from the Bureau of Justice Assistance (BJA), award #2009-D1-BX-K028. Neither the U.S. Department of Justice nor any of its components operate, control, are responsible for, or necessarily endorse, the contents herein.

National Forensic Science Technology Center®
NFSTC *Science Serving Justice*®
7881 114th Avenue North
Largo, Florida 33773
(727) 549-6067
info@nfstc.org