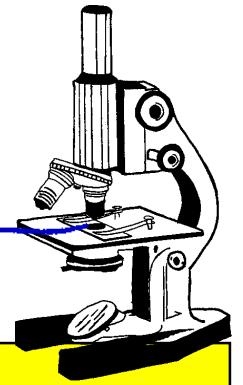


**A CURRENT
EDUCATIONAL
BULLETIN FOR
SUBMITTING LAW
ENFORCEMENT
AGENCIES**

A Closer Examination From The Benchtop...

UNDER the SCOPE



MISSOURI STATE HIGHWAY PATROL • CRIME LABORATORY DIVISION

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THE ACTUAL DATE THAT A FIREARM IS OBTAINED IS NECESSARY FOR PROPER NIBIN ENTRY AND SEARCH. RECORD THIS DATE ON THE ANALYSIS REQUEST FORM.

THE TRACE SECTION NO LONGER HAS THE CAPABILITY TO ANALYZE GUNSHOT RESIDUE KITS BY ATOMIC ABSORPTION (AA). AGENCIES MUST SWITCH TO THE SEM/EDX GUNSHOT RESIDUE KITS.

WHEN SUBMITTING EVIDENCE, CONSIDER PACKAGING MULTIPLE EVIDENCE ITEMS IN SEPARATE CONTAINERS. INDIVIDUAL PACKAGING NOT ONLY PRESERVES THE INTEGRITY OF EACH ITEM BY INHIBITING CROSS CONTAMINATION, BUT ALSO ASSISTS CRIMINALISTS WITH INVENTORY, SINCE ALL ITEMS IN A CONTAINER MUST BE INVENTORIED WHETHER THOSE ITEMS ARE EXAMINED OR NOT.



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MSHP vs. C.S.I.

The well-known forensic science television series *C.S.I.* has had quite an impact on the Missouri State Highway Patrol Crime Lab. Fairly often in court, the MSHP criminalists are asked to compare their job with *C.S.I.*, since most of the jurors are familiar with the TV show. The lab even receives calls from officers asking if we can perform techniques on their evidence like what they saw on an episode. While the ideal world of *C.S.I.* paints a glamorous portrait of crime scene processing where an investigator quickly obtains lab results from pristine evidence to apprehend the suspect and solve the case, the world in which the MSHP lab exists is quite different.

Crime Scene Processing— Unlike *C.S.I.*, the MSHP lab criminalists seldom go to crime scenes or attend autopsies. Occasionally with non-routine cases, an officer requests our assistance through our lab director. In those instances, we assist the officer mainly through evidence location, presumptive testing, and sample collection. However, the officer is still responsible for packaging and submission. We do not interview witnesses or question individuals involved in a case.

Local municipalities, county agencies, and the MSHP all submit evidence to the lab. Therefore, the officers are the first and only people to deal with the evidence before it reaches us. As a result, the criminalists work with what is submitted to the lab, no matter the condition. Our product is only as good as the evidence you submit. Bottom line: the crime scene is yours, and you need to take whatever steps necessary to protect and process it, even if that means limiting the number of fellow officers who want to be a part of it or informing coroners of what you want collected and how to do so.

Backlogs— Analysts on *C.S.I.* eagerly wait for investigators to bring items to process, which are completed while the investigators watch. At the Patrol lab, case processing takes time, resulting in backlogs. Routine cases may be worked fairly quickly, such as single specimen marijuana detection. Others though, such as fiber collection from a vacuum cleaner bag, are complex and time consuming. The turn around time may be even longer if the case has multiple specimens to be routed through several disciplines. For efficiency, specify the exact exams you want; also submit reference standards, if possible, before we have to request them.

The criminalists also perform other essential duties in addition to casework, which are rarely, if ever, seen on the show. For example, criminalists attend training to keep abreast of new techniques and technologies, generate reports, perform essential quality assurance checks, and correspond with officers and attorneys. The most time-consuming functions tend to be related to court issues: several hours are attributed to

copying items for discovery requests as well as sitting in witness rooms waiting to testify. Above all, we must take and pass proficiency tests at specific intervals.

Regarding visitors to the lab, only lab employees may be present while examinations are conducted. This policy ensures chain of custody and confidentiality while reducing the chance of possible unexplainable contamination.

Distinctive Disciplines— On *C.S.I.*, the investigators seem to generalize in every discipline in the lab. For example, the same person not only generates a DNA profile, but also analyzes gunshot residue in the next scene. The MSHP criminalists have general knowledge of each section in the lab; however, we specialize in one specific discipline. Training and retaining proficiency in more than one discipline hinders casework output.

Presumptive/Confirmation Testing— In one episode, a *C.S.I.* investigator put on a pair of orange goggles and, with an alternate light source, proclaimed that she had identified a white fluorescent stain on evidence as semen.

Because many substances, including semen, fluoresce under an alternate light source, the instrument at the MSHP lab is used only for stain location, not identification. Various disciplines in the lab, specifically ones involving drugs and DNA, initially screen samples and then confirm positive results. As with a semen stain, the MSHP criminalists initially use a presumptive test. If positive, a confirmatory test is employed. Only if that test is positive can we report that semen is detected. Not all cases result in a match or positive conclusion. Some evidence just may not contain any probative items, or the suspect is truly not associated with the crime.

Computers— Visualizing a crime scene reenactment on a computer is impressive. As cutting edge as digital crime scene reconstruction may be, we do not possess the capability to do so. Furthermore, we cannot input a latent print or a DNA profile into a computer program, only to have the screen flash a message that a match occurred, and then provide the name, address, and photo of the suspect. AFIS and CODIS provide investigative leads of possible suspects. Any candidates in the database still must fit the entry criteria, such as arrestees or convicted offenders. The agency must then submit proper standards for manual comparison. For now, the human aspect of crime scene evidence comparison to known standards cannot be eliminated.

A Final Note—The forensic advisors to the *C.S.I.* writers make an attempt to keep the story realistic. However, the program would not be as glamorous if some fiction were not involved. While the show is entertaining, the science must be kept in perspective. If you have any questions about laboratory procedures or evidence processing, please contact the lab, or visit the new Patrol website (www.msph.dps.mo.gov).