PATTERN EVIDENCE WITNESSES:
QUESTIONS THAT SHOULD BE ASKED, BUT RARELY ARE
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Abstract
Working in a particular discipline for a long period of time may sound impressive. Working in an accredited lab may sound equally impressive. Are length of services and accreditation factors of competency and accuracy? How are conclusions arrived at in different forensic disciplines? Are there specific criteria practitioners must adhere to? Where are these criteria listed and how was the criteria established? Is it possible that another practitioner would arrive at a different conclusion? This presentation will explore a range of questions that should be asked of all pattern evidence witnesses. The importance of the questions and the meaning behind the answers will be discussed.

Introduction
In February 2009, the National Academy of Sciences released a report outlining the state of forensic science in the United States. Among 13 recommendations for improvement were proposals to establish an independent federal entity to oversee and direct the forensic science community, and the removal of forensic facilities from the administrative control of law enforcement or prosecutors' offices. The report noted, 'The best science is conducted in a scientific setting as opposed to a law enforcement setting', and noted the Department of Justice (DOJ) and the Federal Bureau of Investigation (FBI) provide leadership to the forensic sciences but both are part of the prosecutorial system, not truly independent. Many disagreed that independence was needed; however, independence would ensure the open and transparent atmosphere encouraged in science that results in the best possible conclusions.

Traditionally, most forensic practitioners have been commissioned law enforcement personnel assigned to the special duty of trying to discover and interpret physical evidence to assist in convictions. This direct attachment to law enforcement inevitably aligned practitioners with the prosecution and distanced them from the defense. Forensic science practitioners were overt in their mission and commonly expressed their goals as to "get the bad guy". The divide between forensic practitioners and defense attorneys has been so prevalent that practitioners performing work for the defense were said to have moved to the dark side. In 2012, after a fingerprint misidentification was discovered in the Lana Canen case, the officer who made the error "admitted that he felt pressure when conducting the original examination because he wanted to help out the Elkhart City Police" [1]. Practitioners of science should have no such attachment to the outcome of a case. Instead they should be impartial analysts and educators for the courts.

The legal system itself seems to promote forensic practitioners being aligned with the prosecution. Dissemination rules allow prosecutors access to information that is not easily accessible by defense attorneys. These restrictions are in place to protect witnesses but may not be necessary for scientific conclusions. Defense attorneys can obtain authorization for information through a disclosure request however, this can be a time consuming process and an inconvenience that is not required of law enforcement personnel and prosecutors. Forensic practitioners may feel this process is reasonable since conclusions by defense experts are not open to the prosecution; however, evidence supporting the accusation of a crime, i.e. prosecution evidence, must be disclosed while evidence accumulated by the defense cannot be used towards the allegation.

The legal system not only requires additional steps for the defense to acquire information, but intentionally obstructs the release of information that may prove a person's innocence. In the Canen case, when the defense requested the state lab to re-examine the fingerprint evidence "the prosecutor's office contacted the Lab… and suddenly the examination could only be done through a court order or by request from the prosecutor" [1]. These types of actions are more tolerable in some jurisdictions than other; even so, the legal system clearly suppresses the open environment required in a scientific culture. Forensic practitioners should be objectively evaluating the evidence and reporting the results to both sides equally, with no attachment to the conclusion. Conclusions based on good science should have nothing to hide. If practitioners are expected to be impartial educators for the courts then the structure of the legal system needs to change and the adversarial nature of the process should be diminished. This change is long overdue.

The legal system is not solely at fault. Generally speaking, attorneys on both sides have assumed that practitioners are credible professionals and must be using scientific protocols; an assumption that seems reasonable. However, due to a number of documented forensic failures, this should no longer be assumed. Some law enforcement agencies have not been diligent regarding competency of their practitioners or their forensic units. Many occurrences of bad practices have been discovered resulting in problems from questionable evidence to innocent people being convicted. Everyone, including practitioners, agencies, attorneys, the legal system and the forensic disciplines, has had a hand in the problems. Instead of placing blame, it is time we all work together to find solutions to improve evidence in the courtroom.

Agencies need to be aware of current issues found in other labs and take measures to ensure they are not occurring in their lab. Attorneys need to become educated on scientific data and processes to ensure evidence brought into court stands up to the standards of science. One of the basic tenants of science is to have clear foundations underlying conclusions. Attorney should be requesting this information from a practitioner performing any scientific analysis. They should ask for training records, proficiency test records, credentials, licenses and certifications of the practitioner, standard operating procedures and any quality assurance measures in place to ensure consistent and reliable results. Reputable agencies should track and be willing to share this basic information.

In 2010, the National Association of Criminal Defense Lawyers (NACDL) published its recommendations on strengthening forensic evidence in the court room [2]. The NACDL

publication included a list of items that should be requested by defense attorneys during discovery. Although many attorneys requested these items for specific cases, once acquired, attorneys did not seem to know what to do with the data. The primary importance of asking for these documents is to make sure they exist. If these documents do not exist, attorneys should have serious reservations and question the evidence more critically. The following list gives more specific questions to ask practitioners and the reasons behind these questions. All questions may not be needed for all cases.

The Expertise of the Practitioner

- Ask for credentials.
    - What qualifies this person to analyze evidence and give testimony that will affect a person's life and liberty?
    - Does the person have a degree, license or certification which qualifies them to give particular conclusions? A certain credential may sound like a qualification when in fact may not be. Does a license to perform dentistry qualify a person to perform bite mark identifications simply because both areas focus on teeth?
    - Has the person been competency or proficiency tested? Competency is usually described as showing basic ability while proficiency shows current ability.
- Ask for the documents that support the qualifications. This includes diplomas, certifications, certificates of training, and proof of proficiency. It may seem like this should not be necessary but practitioners have been found to over embellish their qualifications so this should be checked.
- Ask for recent training information.
    - What is the agencies policy regarding training? Is there a structured program with competency tests?
    - Are there continuing educational requirements?
    - Who holds these classes?
    - What is the length of each class?
    - When were the classes taken? Training acquired decades ago may not be pertinent to the standards in place today.
    - Do the classes support the expertise of the practitioner, or are they educational conferences and mandatory classes for employment? Educational conferences may be informative but not truly considered training since there is no test to ensure the attendee learned anything.
    - Is there an official record indicating successful completion of initial training and continuing education?
- Ask how proficiency is determined.
    - Who provides the tests?
    - Are tests administered internally or externally?
    - Are the tests proctored?
    - Are they taken individually or as a group?
    - Are the tests open book tests?
    - Ask for proficiency test results. Practitioners may take proficiency tests but that is not the same as passing the tests.
    - Ask about the policy regarding failure of tests. Are practitioners removed from casework until deemed proficient?

- Ask about the most recent research the practitioner has read. Is the practitioner aware of prominent research and publications in their discipline, including the NAS report? For fingerprints, the Noblis/FBI black box study may be significant. The black box study is a research project looking at the error rate of latent print conclusions.
- Ask the relevance of the research they are citing.
- Time employed is not an indicator of competency.

The Agency

- Ask for a copy of the Standard Operating Procedures. Do they exist? Are they dated? Do they cover the time period the case was completed? Does the employee know the SOPs? Were they followed in this case?
    - How are cases cared for and completed?
    - Are all results verified? Are only positive results verified?
    - Is there a policy for conflicting conclusions? What is the procedure if the verifier disagrees with a conclusion? Where is this tracked? How often does this happen and how would someone know if someone disagreed with the conclusions in this case? How are disagreements resolved?
    - How is the equipment maintained?
- Ask for a copy of the Quality Manual or documents that state the measures used to ensure quality results. Does something like this exist?
    - What are the quality assurance measures in place to ensure accurate results?
    - Are practitioners proficiency tested? How often? Where are the results?
    - Are there random audits? Where are the results?
    - Are problems tracked, where is this information kept? Is it openly available? Why or why not? What kind of corrective action is taken when mistakes happen?
- Ask if the agency is accredited. How long have they been accredited? By whom? When does the accreditation expire?

    Accreditation does not guarantee best practices are used. Likewise, not being accredited does not mean best practices are not used. Accreditation demonstrates that an agency was externally reviewed. The extent of the review should not be assumed.

The Evidence

- Request all bench notes and reports.
    - Is there a policy for note taking and preservation of evidence?
    - Where are the case notes stored (filing cabinet, case jacket, other)?
    - Is it possible that other notes exist and are maintained by the analyst?
- Determine the relevance of the evidence.
    - Is it from inside the crime scene or outside the crime scene?
    - Does the evidence determine guilt, presence, or that an item was touched?
    - Does the evidence determine *when* an item was touched or handled?
- Is there additional evidence that has not been released? Additional evidence may indicate another person may have committed a crime [3]. ALL evidence should be reviewed to determine if the additional evidence is probative.
- Check the chain of custody: how do you know there was not an error or contamination?

Acronyms / Wording

An explanation of all acronyms and ambiguous wording should be requested. The explanations and wording of the practitioner may give insight into a practitioner's knowledge level. Practitioners testifying to absolute conclusions, 100% certainty and zero error rates should be a warning sign. Science does not usually make absolute assertions, with the exception of falsifying a claim. A person's level of confidence is not the same as the accuracy rate of a conclusion. A person can be 100% confident yet 100% wrong about a conclusion. The words used may seem like semantics but they are very important in understanding the weight of the evidence.

- The phrase "consistent with" could indicate general consistency, such as someone having brown hair, or it could indicate resounding consistency. If this phrase is used then an attorney should attempt to clarify the degree of consistency.
- Is the conclusion a scientific conclusion or is it merely the analyst's personal opinion? Ask if there are alternative conclusions that could be possible or are the findings are the only rational explanation behind the data. Scientific conclusions are those that would hold up under scrutiny. Legally, conclusions given are considered opinion evidence however science does not value personal opinions. Science values conclusions that are arrived at through accepted systematic methods and can be substantiated by others.
- A scientific conclusion should be based on research or data, not on the abilities of the practitioner. If a practitioner states that a conclusion is based on their own training, experience or abilities then the conclusions should be suspect.
- A reasonable assumption of uniqueness does not mean that all conclusions are correct. If a practitioner claims that a conclusion is based on the assumption of uniqueness, instead of on a resounding amount of consistency, the conclusion should be scrutinized.
- The validity behind a conclusion is not established through years of use. Validity means that the conclusion is developed through well founded premises that relate to the conclusion.

Science

- How was the conclusion arrived at? What specific process and criteria were used?
    - Are the specifics of the method clearly defined?
    - Have the assumptions and specifics of the method been tested?
    - Are the method and criteria for conclusions the standard means of arriving at conclusions for this discipline?
- Could there be a different conclusion that is plausible (could another source have produced this impression - fingerprint, bullet, bite mark, shoe, tire, voice)? Historically, fingerprint practitioners have stated that practitioners with equal training will always arrive at the same conclusions. If conclusions differ then one of the practitioners must need more training. This perspective served the discipline well for 100 years however, deficiencies in this thinking began to surface. Attributing disagreement to competency is not only arrogant, it contradicts the scientific culture of always doubting and questioning ideas as a means of ensuring the highest level of support behind thoughts. Science values discussion, debate and disagreement. Initial conclusions may differ but scientific conclusions should meet general consensus after discussion and debate. Conclusions that do not meet general consensus would not be considered as overwhelmingly accepted conclusions.

- What research and studies support the method used and the conclusion? (Ask for copies of the research cited).
- If a practitioner states the method they used is a scientific method, ask for them to support such a statement.
- Are there standards needed to arrive at different conclusions? Are these listed in the agencies SOP? Are these standards required, recommended or simply the typical way practitioners arrive at conclusions?
- Where did the standards come from? Were they developed through research or are they simply stated by an authoritative source?
- Past errors have been blamed on bad application, not bad science. How can someone tell the difference? Are overstatements considered to be bad application if the practitioners were taught and encouraged to think and testify in this manner? Overstatements may not simply be 'bad application'; this may be 'bad training'. Acceptable information assumed and used by each discipline needs to be in writing so that it can be debated and improved. Variability among conclusions in any forensic discipline may be due to differing knowledge levels and differing philosophies. Bad application can be determined by comparing HOW a conclusion was arrived at to the acceptable method of arriving at a conclusion.

There is a significant advantage when dealing with pattern evidence impressions over chemistry; the basis behind the conclusion should be able to be demonstrated. If the basis behind a pattern evidence conclusion cannot be demonstrated then concerns should be raised. Attorneys should be critical of all evidence, not merely accepting it. Practitioners should be educating the courts; not trying to convince them they are correct.

Conclusion

Forensic evidence has been overwhelmingly accepted and relied on. Accepting conclusions instead of questioning the evidence has allowed weak evidence to be admitted into trials. It is time to demand that more science is put back into the forensic sciences. Cross examination can expose weak evidence. A person performing science will value open discussion and questions and will be agreeable to educate either side on the basis behind their science and the basis behind conclusions. Conclusions are as strong as the science behind the conclusions.

Trial preparation can be looked at as survival of the fittest. The evidence should be examined to ensure it holds up under the light of scrutiny. If you raise the bar, practitioners will live up to the new expectations. Although it is recognized that some courts allow more scrutiny than others, defense attorneys have an obligation to be critical and ensure the evidence is solid. As with the wolf and the caribou, the weak will fall out and the strong will get stronger which will improve the legal system and the evidence being admitted into court.

References

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