# The Strengths and Limitations of the use of forensic science

Over the past decades, Forensic science has evolved and has been embraced by most states as a vital constituent of modern legal practice. It is widely used in courts as a major source for the outcome of a verdict. Forensic science has attained a merit of its own although it is relatively new in the jurisprudence world. As technology and science have evolved with time, more and new methodologies and practices in law realm have been established. In United States (U.S.) specifically, the application of utilizing forensic analysis has become a routine (James,2009).

Statement of the problem

This report explores the use of forensic science and DNA in the judicial processes, its strengths and limitations.

## Admissibility and Use of Forensic Evidence in Courts.

Over the last decades, forensic evidences have taken part in the search for justice to individuals who have been convicted for crimes and also as a link to suspects. It has been cited as a fallible source unlike the eye witnesses.

The rate at which forensic evidence is used in criminal courts depends on the type of offence. For example, for murder cases forensic science evidence is presented almost always. In criminal cases, a prosecution team commissions most of the forensic assignments. On the other hand, the legal team of the defendant can commission forensic assignments to challenge or check the prosecution’s forensic evidence or to determine the innocence of the defendant.

Forensic evidence has enabled to link offenders to their victims and crime scenes using physical evidence and also in identifying individuals without peer. With perspiration, a fleck of blood, saliva on a cup’s rim, a piece of hair among others has been successfully used to link a suspect to a crime. Innocent and wrongly accused individuals have been exonerated using such evidences. Persons who have been jailed for years have later been exonerated after DNA analysis has been carried out to prove their innocence.

To yield positive results, crime laboratories have enforced professionalism, adopted reliable procedures and coordinated with both the legal and the scientific communities. Presently, for a scientific system to be accepted before a court, the evidence derived from it does not have to go through a prescribed test. For future admissibility of scientific evidence in court to be shaped, development of more newer and advanced forensic tools and techniques is being embraced as technology and time progresses. Thus, courts are increasingly relying more on scientific evidence to deliver a judgment.

## Problems Associated with Forensic Science and DNA Evidence.

Evidences of forensic science should always be neutral. Scientists should not have any stake in the case outcome though this is not always the case. Numerous deficiencies have threatened to limit forensic services to the society and have therefore weakened its presumed scientific foundation. Below are some of the major problems in forensic science and DNA testing:

Astounding Frequency of Cross-Contamination and Sample Mix-Ups

A surprisingly high rate of errors in the laboratory is one of the emerging problems which involves cross-contamination and mix-up of DNA samples. Such errors appear to be persistent and crop up even in the accredited DNA labs. The forensic scientists though have managed to reduce such instances and thus the rate of DNA testing errors have been claimed to be low thus negligible, but growing evidence suggests otherwise.

Bad Laboratories

Uneven state of forensic DNA labs is another recognized chronic problem. Labs differ significantly in the care with which they authenticate their methods and the severity with which they are carried out. Procedures that are followed religiously in quality assurance and quality control in some laboratories are disregarded or followed constantly in others. Bad laboratories have always been there but detection of their shoddy work has always been complex (Neubauer, 2009),. This is because such labs are in jurisdictions which have traditionally safeguarded crime labs from external examination. For example according to Strutin: “It is now recognized that the Houston Police Department (HPD) Crime laboratory did grossly inadequate incompetent and biased DNA and serology work for well over a decade before a team of television journalists exposed the problems in late 2002.

Dishonest DNA Analysts

Test results are at times falsified by deceitful DNA Analysts. This emerging problem has led to the analysts faking test outcome to cover up errors that come up from sample mix-ups and cross-contamination of DNA samples.

Connecting the evidence and the suspect

Nuclear DNA analysis being an exception, there is no other forensic method that has severely shown the capacity to persistently, with a high degree of assurance, exhibit a connection between a specific individual or source and the evidence. For instance, fingerprint analyses have more available research and conventional protocols than for bite marks analysis. There are also notable variations within the disciplines. For instance, all fingerprints evidence is not equally good reason being that the determination of a true value evidence is the latent fingerprint image quality. These disparities within and between the forensic systems disciplines bring to light a serious problem in the forensic community.

Inadequate legal counsel is another major problem DNA testing will not solve. In some instances, defense counsel never consulted scientific experts.

DNA Analysis in the forensic science is taking a slow speed on its road to admissibility. Insufficient funds are evident in certain jurisdictions and they therefore cannot send evidence items to private labs or establish own lab. Labs that perform tests have often had backlogs measured in months. A great burden is imposed by defense counsel, prosecutors and courts on lab’s time in discovery battles that often transpire when there are upcoming new techniques on forensic scenes.

Though valuable forensic DNA evidence can be found in decades old samples, the DNA left in scenes of crime can be affected by factors like: sunlight, bacteria, moisture and heat among others. As a result, such DNA may not be used to give evidence and just like the fingerprints, analysts will not use DNA testing to give the time period when a suspect was at the scene of crime or at what time the suspect was there.

## Exoneration Based on DNA Evidence

Cases that would have been impossible to prosecute before the arrival of DNA typing are now prosecuted. A number of states created DNA data bases on offenders that are known which they compare against unsettled crimes. Matches are provided from their databases which assist to successfully prosecute a handful of them.

Persons wrongly convicted are exonerated by use of DNA which is termed as a legislative reform movement. Convictions can be successfully challenged using DNA analysis on existing evidence. To ensure that testimony and results can withstand rigorous examination and that they are of high caliber, high standards are maintained for the collection and preserving of evidence. DNA methodology of testing must also meet precise scientific criteria for accuracy and reliability.

In future, we expect miniaturized portable instrumentation to provide crime scene analysis that will be computer-link remote analysis. This will allow quick identification and rapid elimination of innocent suspects. Availability of markers will also be needed to identify physical qualities of the DNA contributor. Using this information, it will be easy to narrow a suspect search with increase in efficiency and accuracy of operation.

## Conclusion

It is clear that the United States justice system depends on the use of natural science-based forensic evidence, and admissibility is simply one of the steps evidence must satisfy to be utilized in the justice system. In the near future, it is very likely that the admissibility of science as evidence will be challenged in the United States Supreme Court as technology develops and allows researchers to gain precise results and understanding of the human body. At the present, it is too early to determine whether the Federal Rules of Evidence are outdated, however this does not mean that the construct of the legislation should not be reexamined. Forensic analysis, though controversial in many aspects, constitutes a primary source of information for the tier of fact when determining a verdict for a case. Thus, natural science-based forensic evidence should be carefully studied and examined thoroughly in order for justice to be properly achieved.