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Review Article

Medical Laboratory Science Perspective of Forensic Medicine in Nigeria

[1]Nnodim Johnkennedy and [1]Osuala, Chibuzor Paul

Department of Medical Laboratory Science, Faculty of Health Science, Imo State University Owerri, Nigeria

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*Corresponding author: Nnodim Johnkennedy
Department of Medical Laboratory Science, Faculty of Health Science, Imo State University Owerri, Nigeria

Abstract

Since 1980, Nigeria has been on the global crime map and crime rate in Nigeria has continued to increase since, recently, the rise in crime rates and the sophistication with which these crimes are been perpetrated have created a need for the study of forensic medicine as an alternative way of investigating crimes. The Nigeria Police Force and other security agencies still rely mainly on eye witness testimonies, circumstantial evidence, and confessions as a means of evidence which is ineffectual at best. The Use of forensic medicine seeks to apply medical knowledge to the investigation of crime, especially in the establishing the cause of injury or death. With the use of both primary and secondary data, this research explores the Medical laboratory science Perspective of Forensic Medicine in Nigeria.

Keywords: medical laboratory science, perspective, forensic medicine

INTRODUCTION

Forensic Science is the study and application of scientific facts and techniques for legal problems. It is also concerned with a group of medical specialties which deals with the studying, investigating and diagnosis of individuals who have been injured by or who have died because of internal, external, unnatural causes which may be suspected to be poisoning, assault, suicide and other forms of violence. Forensic medicine is an old medical discipline defined as "that science which teaches the application of every branch of medical knowledge to the purpose of the law [1]. Forensic medicine deals with medical essentials in health care especially for doctors that are part of teaching, training and research; it is the application of medical knowledge to legal questions. Indeed,when it comes to cases of life and death, objective evidence is very necessary. While key evidence in criminal cases could probably have come from witnesses or other subjective means in the past, forensic science allows for objective evidence. That means that fMedical laboratory forensic evidence, based as it is on the scientific method, is seen as more reliable than even eyewitness testimony. In a judicial system which maintains that the accused is innocent until proven guilty, evidence gathered by forensic medical laboratory scientists is now regularly used by both the defense and the prosecution in many court cases.[2]

History and Development of Forensic Science and medicine. The first written account of using forensic medicine can be traced back to Song Ci during the Song dynasty in China in 1248, although the term "clinical forensic medicine" was coined by Thomas Stuart, in the 19th century, referring to the connection between the usage of medical evidence for judiciary purposes. This had introduced regulations concerning autopsy reports to court, how to protect the evidence in the examining process, and explained why forensic workers must demonstrate impartiality to the public. He devised methods for making antiseptic and for promoting the reappearance of hidden injuries to dead bodies and bones for calculating the time of death (allowing for weather and insect activity), described how to wash and examine the dead body to ascertain the reason for death. In 16th-century Europe, medical practitioners in army and university settings began to gather information on the cause and manner of death. Ambroise Paré, a French army surgeon, systematically studied the effects of violent death on internal organs. In Warwick 1816, a farm laborer was tried and convicted of the murder of a young maidservant. She had been drowned in a shallow pool and bore the marks of violent assault. The police found footprints and an impression from corduroy cloth with a sewn patch in the damp earth near the pool. There

were also scattered grains of Wheat and chaff. The breeches of a farm laborer who had been threshing wheat nearby were examined and corresponded exactly to the impression in the earth near the pool. An article appearing in Scientific America in 1885 describes the use of microscopy to distinguish between the blood of two persons in a criminal case in Chicago. In the past decade, documenting forensics scenes has become more efficient. Forensic scientists have started using laser scanners, drones and photogrammetry to obtain 3D point clouds of accidents or crime scenes. Reconstruction of an accident scene on a highway using drones involves data acquisition time of only 10–20 minutes and can be performed without shutting down traffic. The results are not just accurate, in centimeters, for measurement to be presented in court but also easy to digitally preserve in the long term The relevance of Forensic medicine in the criminal justice system cannot be overemphasized, as the need to have a crime-free, peaceful, habitable, and developed society continually subsists. The activities of the Forensic Scientists include; deoxyribonucleic acid (DNA) matching, hair analysis, serology test, fingerprint analysis, blood spatter analysis, crime scene investigation etc. which have till date proven to be more effective in Criminal investigations [3].

MEDICAL LABORATORY SCIENCE

Medical Laboratory Science is a branch of the Health Care sectors that are responsible in the performing of complex tests on patient's body samples which can be blood, urine, tissues with the use of sophisticated equipment like microscopes. The medical laboratory scientists are like the detectives of the healthcare world. They look for clues that can shed light on the investigation and treatment of a disease or injury. Some areas of medical laboratory training include; chemistry, hematology, immunology, microbiology, molecular diagnostic toxicology, transfusion medicine [4].

IMPACT OF FORENSIC MEDICAL LABORATORY SCIENTISTS

Forensic Medical Laboratory Scientist are scientist who have sound knowledge in the laboratory. The persons can defend any result that comes out from a well-organized investigation which follows the normal procedures. They provide such evidence for use in court of law to support the prosecution or defense in criminal and civil investigations. They pay more attention to searching for and examining contact trace materials associated with crime or which are usually found in crime scene or elsewhere to bring about meaningful objective findings [5]. This material can include blood and other body fluids, hairs, fivers, from clothing's paint and glass fragments, tyre marks, and flammable substances use to start fire. Evidence is usually represented in written clearly for the courts to understand even when the evidence is complicated [6]. The scientist is expected to interpret his or her findings clearly. The Medical Laboratory Scientist play a great role in a laboratory as they ensure that the evidence is not altered or handled by an unauthorized personnel such as the rules and regulation are followed at all time. They are involved in analysis of biological, chemical, hematological, operate, adjust and maintain scientific instruments. Some of the roles of the Forensic Medical Laboratory Scientists are: To prepare and package biohazard wastes and materials for external disposal, perform tests and analyses, monitor and maintain an inventory of supplies for laboratory use, entering appropriate data and information into automated forensic database, including the integrated Ballistics system and the combined DNA index system[7]. In some cases of chemical incidence in a crime scene, a Forensic Medical Laboratory Scientist is expected to carry out some chemical analysis which may include:

i. Accelerant used in the crime of Arson
ii. Explosive analysis in cases of conventional crime and terrorism
iii. Toxic chemical and biological agent used in cases of murder, industrial negligence and terrorism.
iv. Drugs analysis in cases of trafficking and drug overdose.
v. Gunshots residue analysis and
vi. Analysis and chemical matchings' of paint transfer in cases of hit and run motor vehicle crashes [8].

FORENSIC MEDICINE IN NIGERIA

In Nigeria Forensic Medicine is still a developing field of Health sector in Nigeria. Nigeria which is also a developing country who has showed important interest in Forensic Medicine, instance in Nigeria who have about 5 university that offers Forensic Medicine, but so far Nigeria has recorded great work in forensic medicine at list some cases of murders and accident have been successfully investigated and perpetrators has been persecuted after being found guilty of the charges against them [9,10].

For instance the case of the university students that was raped and murdered. The Forensic Scientists was able to investigate and see that she was raped and killed.. Forensic work is now truly multi professional and an awareness of what other specialties can contribute is an essential part of basic forensic education, work and continuing professional development [11]. However clinical forensic medicine continues to develop to support and enhance judicial system in the proper, safe and impartial dispensation of Justice. A worldwide upsurge in the need for and appropriate implementation of human rights policies is one of the drivers for this development,

and we are hoping for a responsible government in Nigeria and other world bodies will continue to raise the profile, invest and recognize the absolute necessity for independent, impartial skilled practitioners of Clinical Forensic Medicine. The need for reform of legal system and acts regulating the practice is highly needed to be given urgent and genuine attention [12].

CONCLUSION

Medical Laboratory Science perspective of Forensic Medicine in Nigeria is still a growing area in the Health Sector with consistency and honestly will grow to be one of the best in Africa and the world at large. The Forensic investigations are mainly carried out by experienced scientists who have been in the practice for decades. The basic ethical principles in Forensic Medical Laboratory Science include respect of persons which is autonomy, beneficence, and justice, Families of patient or deceased persons must be informed before carrying out any investigation. These vital principles must be followed and never be neglected in the general practice of Medical Laboratory Science. It is therefore imperative that for there to be an improvement in forensic medicine in Nigeria, the government should implement policies that would aid in the practice and use of forensic medicine in the investigation of Crimes in the country, some of which include, encouraging the study of forensic medicine in institutions across Nigeria and funding of laboratories that specialize in forensic medical analysis, as well as training national law enforcement personnel's in Forensic Analysis as an alternative source of Investigation.

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