Factors Hindering Accessibility of Quality Medico-Legal Service in Secured Diagnostic Crime in Western Kenya

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Abstract

Globally and regionally, Population Health suffers from significant number of evidence contamination, which remains inadmissible in jurisprudence thus, posing major challenges among forensic investigators and next of kins. In secured diagnostic crime of quality (History, visible evidence and victim anatomical planes), most investigators ignore real admissible evidence as indicated by witness, geographical features or, anatomical planes of the victim, hence, they provide evidence based on current events on victim, with limited reconstruction of evidence content, thus contaminating valuable medico-legal evidences, rendering them inadmissible. Traditional forms of forensic investigations remain key pillar in accessible to medico-legal crimes, objectively and certainty on measured outcome. Health determinants of the increased evidence contamination at diagnostic crime in Sub-Saharan Africa (SSA) are aimed at hiding Political and Social Cultural differences, concealing patient mismanagement, enhancing unavailability of valid data at diagnostic crime to testify, influenced by persistent limited access to grant witness immunity, like limited access to affordable forensic training from middle colleges on standard operating procedure on management of quality forensic evidence at diagnostic crime, these remains a major obstacle on implementing quality medico-legal issues. Prolonged failures to utilize quality standards on evidence reconstruction have ignited severe criticism like failure to contain chain of custody on secured evidence and to remain traceable. Hence, the need for study using sampling and cross sectional designs, by purposive sampling, research tools used were survey and interviews on forensic service providers. Exploring study, a sample size of 133 respondents was used. Result showed, majority, (84%), (106) respondents, demonstrated that evidence contaminations are aimed at concealing real evidence, thus inadmissible. We also established that, prevalence of witness reconstruction and grant immunity was determined by forensic services providers trained in forensic, those untrained were on contract, many in numbers 93% (125), compared to those trained, and permanently employed, 7% (8) with prevalence risks of OD (0.34, 2.22) and Relative risk of RR (1.5).The study revealed that, majority, over 85% (113) service providers do not have ideas on witness grant immunity with RR (3.6) in our society.

Keywords

Diagnostic Crime; Reconstruction of Evidence; Medico-Legal; Grant Witness Immunity; Inadmissible; Admissible of Evidence

Introduction

Globally and regionally, majority of Population Health in our societies, suffer from significant number of delayed or no prompt justice due to prolonged evidence contamination at diagnostic crime by concealed community participation with conflict of interests, hence renders most cases inadmissible before courts, thus posing a major challenge among forensic investigators and next
of kins [1]. In a given secured diagnostic crime of quality (History, visible evidence and victim anatomical plane), most investigators ignore admissible evidence as indicated by real witness, geographical features or, anatomical planes / positions of the victim, hence provide evidence based on intermediate causes and not underlying causes, or events at the scene, with limited reconstruction of its content value, and thus contaminating most required medico-legal evidences, rendering them inadmissible before the court [2]. Traditional forms of forensic investigations and community participation utilizing quality evidence at diagnostic crime, remain a key pillar, that provide access on forums of medico-legal concepts to look at diagnostic crimes objectively and certainty of outcome measured and properly explained [3]. It was these reasons that lead to a survey and interview on forensic service providers in western Kenya, investigating how political and social cultural influence community participation in evidence contamination, limited provision of witness grant immunity, evidence reconstruction and lack of enough trained forensic service providers influence the study [4].

Health determinants of the increased evidence contamination at diagnostic crime in Sub-Saharan Africa (SSA) community participation may be aimed at concealing political and social cultural challenges among population health, concealing patient mismanagement, and enhancing unavailability of valid data from anyone who had access to diagnostic crime to testify [1]. Limited access to grant witness immunity by the Government and persistence limited access to affordable forensic training colleges by middle level service providers on quality standard operating procedures in management of evidence at diagnostic crime remains a major challenge on implementing quality medico-legal process in Kenya [3]. Failure to utilize quality standards on evidence reconstruction, have ignited severe criticism in forensic science where, chain of custody which ensures that evidence is secured and traceable at all times remains unachievable and unattainable [5]. In Kenya Prolonged persistence of, under utilization of these basic health determinants of medico-legal, have influenced negative impact on forensic service delivery from secured diagnostic crime scene.

The chain of custody is paramount in investigation and guarantees the physical security of all evidence that is part of the case in data form, initials or names of persons collecting evidence, and all subsequent community involvement, who have and will come in contact with evidence, that comes in many different forms such as guns, blood on knives [6], biological fluid samples such as blood, or everyday tools and records, like receipts or bank statements are vital for forensic diagnosis, other evidence may include: fibers, firearm residue, photographs or videos, and DNA fingerprints [7].

Forensic scientists analyze evidence by reconstruction of evidence in diagnostic crime to come up with an explanation for why a crime occurred. Ensuring that evidence is collected in an accurate and timely manner helps officers to better understand what happened at the scene and aids in the investigation being completed successfully [6]. Only appropriate personnel with proper knowledge skills and training in forensic should collect evidence, as first Responders, in diagnostic crime. Different types of evidence will sometimes need different methods of sample and data collection, for instance specific containers, such as bags, envelopes, or boxes, may be optimal for biological samples. Khaki paper containers allow evidence that is not completely dry to continue drying. Plastic container collection protects those samples from deteriorating. When evidence are collected properly there is less of chance that items collected will be damaged or contaminated [8-9].

Forensic scientists uses a variety of different, data, comparable standards of tools, equipment and techniques in fingerprint collection, for example, use of grey or black magnetic powder, and other bodily fluids such hair or eye fluid, are collected to extract DNA data in laboratory [7]. Shoe and tire prints can be collected using dental stone. Electronics or physical finger prints are taken for examination by a technical expert to search for further evidence [8]. Documents from the diagnostic crime area are also taken for crime reconstruction [10]. Ammunition and weapons are taken for matching to wounds and ballistics. Photographs and tool marks are taken too matched to a real weapon at a later time. Any other trace evidence is also collected [7]. However implementation of these medico-legal factors is western Kenya remains unclear and undocumented.

Material
Community Participation in Evidence Contamination, To Conceal Political and Social Cultural Differences

Admissible evidence can be used in court to convict persons of crimes; so it must be handled in a scrupulously careful manner to prevent tampering or contamination. The idea behind recording chain of custody is to establish that alleged evidence is in fact related to
the alleged crime, rather than having, been “planted, “or “blanketed” fraudulently to make someone appear guilty [11]. Establishing chain of custody is made of both a chronological and logical procedure, through community participation, especially important when evidence consists of fungible/ interchangeable goods, on black market or illegal drugs which have been seized by law enforcement personnel [1]. In community participation of defendant at times disclaims any knowledge of possession of controlled substance in question, or chain of custody documentation and testimony is presented by prosecution to establish that substance or material in evidence was in fact in possession of defendant / victim [4]. It’s these participation that influence the defendants’ community to conceal evidence in order to spoil cases due to political or social reasons, [8]. Most communities are intentionally, involved in attack, on recorded Photographs, videos, drawings and plans, documentary and data evidence such as receipts, travel tickets or bank statements, very simple action so that investigators evidence become inadmissible before a court. Due to political or social interests [3], they interfere with, real evidence to conceal any future forensic examination, thus leading to forensic contamination which may be mitigated by, Controlling access to scenes, covering scenes, keeping records of everyone who has had access to a scene, taking fingerprints and DNA samples from staff before they are allowed to get to a scene [7]. Providing guidance in packaging of recovered material, to prevent deterioration or Contamination, Photographs of all evidence are taken before anything is touched, moved, or otherwise further investigated. Evidence markers are placed next to each piece of evidence allowing for organization of evidence [12].

Positive Community participation in control of evidence contamination remains a big challenge, where by real evidence are ignored or concealed at the points of entry [4]. where identifiable persons or real material with physical custody of evidence by police officers or detectives take charge of a piece of material or position evidence, document its collection and anatomical plane at before and after incidence are concealed following cartels of corruption in our modern [8-9], before being handed over for record and storage for crime reconstruction and laboratory analysis. These transactions, and every succeeding transaction between collection of material evidence and its appearance in court, should be completely documented chronologically in order to withstand both autopsy and legal challenges on authenticity of the evidence.

To preserve legal error for review in forensic pathology, objections are raised against introduction of evidence made on basis of relevance of crime, and demonstration made relevant evidence with significant portion of typically provided evidence [13]. A variety of political and social crimes operate to exclude relevant evidence before forensic scientists arrive at crime scene to collect data [7]. Thus, enhance limitations on use of quality evidence of liability insurance, subsequent remedial measures, settlement offers, and plea negotiations, mainly because the use such contaminated of evidence by Police crime, in crime scene before forensic expert arrive, discourages parties and spoil targetable and anatomical position evidences, from carrying holistic quality identification on the cause and manner of crime, fixing hazardous conditions, offering to settle, and pleading guilty to crimes, by the offenders in population health [3]. Australian and Hong Kong rules of crime of evidence work to ensure that criminal trials are conducted in a manner that is fair to both parties in the proceedings with distinct focus on testing of related crime of evidence through and by utilizing quality forensic training and skills to all service providers [6, 12]. Unfortunately, in Kenya this remain unclear among the forensic scientist and among uniform personnel.

Fundamental principle of forensics states that every contact leaves a trace [6], thus contact of a person with a person, contact of a person with a vehicle or location, or of a vehicle with a location, Forensic investigators identify those traces and analyze them to explain what happened [12]. Evidence at crime scenes may include: Biological sample such as DNA from blood, semen, saliva and breath, hair, fingerprints and body part prints, urine, teeth, Fibers such as pieces of material torn from clothing, or pieces of weapons broken during [7]. Different types of crime scenes include outdoors, indoor, and conveyance, however, outdoor crime scenes forms most difficult evidence to investigate due to exposure of evidence to objects such as rain, wind, or heat, as well as animal activity, which contaminates the triangular crime scene hence, destruction of evidence [8]. Indoor crime scenes have a significantly lower chance of contamination because of the lack of exposure. The contamination here usually comes from the people factor [14]. Conveyance crime scenes are crimes committed by means of transportation, such as robbery or auto theft, each type of crime scene, along with the nature of the crime committed like, robbery, homicide, and rape, and have different procedures. Under Rule 403 of the Federal Rules of Evidence, relevant evidence may
be contaminated thus excluded if its probative value is substantially outweighed by the danger of one or more of the enumerated grounds unfair prejudice, confusing the issues, misleading the jury. Undue delay wasting time and needlessly presenting cumulative evidence [1].

Data Collection from Diagnostic Crime Scene

All incidences that occur during analysis of a crime scene are documented for future reference, academic purposes or research [3]. It is required that, initial responding forensic scientist makes sure that scene has an extremely coherent and summarized documentation which include officers’ observations and actions while at scene [11] The initial responder is in charge of documenting the appearance and condition of the scene upon arrival, gather statements and comments from witnesses, victims, and possible suspects, and generated other documents so that a crime scene’s integrity is kept intact, documents include a list of who has been in contact with evidence (chain of custody), a log of what evidence has been collected, conditions under which evidence is gathered, identity of all evidence handlers at scene as real witness testify, duration of evidence custody [10], security conditions while handling or storing the evidence, and manner in which evidence are preserved and transferred to subsequent custodians each time such a transfer occurs for instance, along with the signatures of persons involved at each step up to the forensic laboratory, or court room [11].

Documentation of evidence are keys for maintaining a chain of custody because everything that is done to the piece of material evidence must be listed and whoever came in contact with that piece of evidence is accountable for what happens to it. This prevents police of crime and other law officials or forensic investigators from contaminating the evidence. Sketching scene is also a form of documentation at a crime scene that provide notes to be taken as well as to gauge distances and other information that may not be easily detected from only a photograph or reconstruction model. The investigators will draw out locations of evidence and all other objects in the room. The sketch is usually drawn from an above point of view. Notes are taken by forensic investigators [10]. to ensure memorization of their thoughts and suspicions about different pieces of evidence. Testimonies recorded as Physical evidence or material evidence plays vital role in the litigation procedure, introduced as evidence in a judicial proceeding to prove a fact in issue based on the object’s physical characteristics. It is an offense at common law to conceal, or destroy evidence knowing that it may be wanted in a judicial proceeding or is being sought by law enforcement officers. Study in U.S., (2004) opined that a crime under statutes of many United States. Prohibits, concealment, destruction, or tampering with evidence.

Quality Crime Reconstruction to Reduce Evidence Contamination

Crime scene reconstruction is a forensic science that one gains explicit knowledge of series of events that surround the commission of crime using deductive data and inductive reasoning, physical evidence, scientific methods, and their interrelationships. Study by Gardner and Bevel explain that crime scene reconstruction involves evaluating context of a scene, through community testimonies / witness and the physical evidence found there or anatomical plane and position of the victim in an effort to identify what occurred and in what order it occurred [10].

While study by Chisum and Turvey explain that holistic crime reconstruction is development of actions and circumstances based on the system of evidence discovered and examined in relation to a particular crime scene [4]. Crime scene reconstruction has been described as putting together a jigsaw puzzle but doing so without access to box top; the analyst does not know what the picture is supposed to look like. Furthermore, not all of the pieces are likely to be present, so there will be holes in the picture. However, if enough pieces of a puzzle are assembled in correct order and recorded, the picture may become clear enough that viewer is able to recognize the image and answer critical questions about it. In forensic science, there are three areas of importance in finding the answers and determining components of a crime scene: with specific incident reconstruction [2]. Physical evidence reconstruction of quality data and specific incident reconstruction deals with road traffic accidents, bombings, homicides, and accidents of any severity. In Evidence reconstruction we looks at connections between evidence, sequence of events, and identity of community involved. Physical evidence reconstruction focuses on such items as firearms, blood traces, glass fragments, and any other objects that can be stripped for DNA sample analysis [2].

Competent crime scene reconstructionist have technical knowledge and understanding of forensic investigations, with no set educational requirements; however, many practicing crime scene, possess knowledge and skills in forensic science, chemistry, biology, physics,
engineering, or criminal justice, they have considerable experience in investigation and analysis of triangular crime scenes using physical signs and evidence [9]. Also, they gain such experience either as a crime scene investigator, homicide investigator, or medico-legal death investigator. In medico-legal crime scene reconstructionist is a community of forensic scientist specialized in interpreting and assembling evidence in a coherent manner. In Crime reconstruction one need not be an expert in all forensic disciplines, but must become an expert in only in the interpretation of evidence in context of what is able to assemble those evidence into visible picture [2].

Generally, elements of offenses are that community are have knowledge that an official proceeding or investigation is in progress or is likely to be instituted soon; so that the person or community, take over action to alter, destroy, conceal, or remove evidence; and that the person had purpose of impairing the value or availability of the evidence in the proceeding or investigation. In [15], physical evidence includes one’s fingerprints, handwriting, vocal characteristics, stance, stride, gestures, or blood characteristics [7]. However, the model of evidence reconstructions in Kenya remains unstated and undocumented.

**Skilled and Trained Forensic Scientists to Reduce Evidence Contamination**

After a crime scene has been discovered, it is important that measures are taken to secure and protect the scene from contamination [6]. In order to maintain the integrity of crime scene, law enforcement must take action to block off surrounding area as well as keep track of who comes in and goes out. By taking these precautions, officers can ensure that evidence collected is fully admissible in jurisprudence. Evidence that has become contaminated, tampered with, or mistreated can pollute the crime scene, and cause a case to be thrown out of court [11]. Service providers conducting medical examinations will need to be highly trained; other examinations will require only basic training. Staff should be provided with appropriate equipment, including health and safety clothing, bags, boxes and bottles to store samples and material, and labels and record sheets to identify them clearly [8]. Appropriate and secure storage facilities should be provided where material is held’ before it is taken for further analysis, and places of analysis should be clean and have. Procedures in place to protect samples and materials, material should be transported in a way that does not allow contamination; there should be a system of tracking samples by recording that placed them in storage, who removed them and who received them for analysis [13]. All the evidence collected at a scene must be transported to a facility where it can be described, photographed and labeled under secure and confidential conditions. Any human remains go to a medical facility, usually a morgue, for an autopsy or postmortem, is normally performed by a pathologist, a medical doctor who specialized in study and diagnosis of diseases, forensic pathologist examines the body to determined cause and manner of death, forensic odontologist analyzes and describes the dental traits [6]. If only skeletal remains are present, a forensic anthropologist examines bones using a biological profile. Family has right to order an autopsy if they wish to know the exact cause disease, injury or abnormality, or manner i.e. natural, accident, suicide, homicide, or undetermined of death. However, when death occurs under suspicious circumstances, the responsibilities of State override wishes of the family and a coroner or medical examiner may perform postmortem without seeking permission from the next of kin [3].

Forensic anthropologists are trained to examine evidence regarding circumstances surrounding death through, analyzing skeletal trauma and differentiating between injuries caused by bullets, sharp objects, blunt objects, or other instruments [10]. Sharp force trauma forms narrow or pointed object hits on very small area to cause stabs, slashes, which are typical indicators for sharp force that penetrate deep and leave cut marks on bone. However, blunt force trauma results from a larger implement hitting a much broader area, cause fractures of arm and leg bones or crush and shatter flat bones of the skull. Projectile traumas are due to high force applied over a very small area, for example bullets, arrows, spears, delivered at high velocity. The damage caused by projectile traumas indicates direction of travel projectile. Other forms of trauma that form good evidence includes: strangulation, electrocution, chemical or heat related trauma, or explosions [9].

The patterns of injuries present on a body can be very important and vary from multiple; severe to blunt injuries. Sharp force injuries to the hands and lower arms are indicative of defense wounds. The direction of projectile wounds can also be used to support or refute a suspect’s story, thus the anthropologist’s task to carefully record all traumas according to type, location, and number to help reconstruct the overall picture of what happened to a person at the time of death [13]. Although traumas may not be legally responsible for determining cause of
death, the information anthropologists collected may help in medical investigation and, make to follow up [2].

**Witness Grant Immunity to Enhance Admissibility of Evidence**

Witness protection is protection of a threatened witness involved in the justice system, including defendants and other clients, before, during, and after a trial, usually by police [8]. While a witness may only require protection until the conclusion of a trial, some witnesses are provided with new identification of the witness, and may live out the rest of their lives under government protection [8]. In law a witness is someone who, either voluntarily or under compulsion, provides testimonial evidence, either oral or written, of what he or she knows or claims to know about the matter before some official authorized to take such testimony [14]. A percipient witness or eyewitness is one who testifies what they perceived through his or her senses of seeing, hearing, smelling, or touch, perception can be assisted with human sense or instrument, such microscope or stethoscope, by other scientific means, such as chemical reagent. A hearsay witness is one who testifies what someone else said or wrote. In most court proceedings there are many limitations on when hearsay evidence is admissible, have limitations such as, do not apply to grand jury investigations, administrative proceedings, and may not apply to declarations used in support of an arrest or search warrant [12].

An expert witness is one who allegedly has specialized knowledge relevant to the matter of interest, which knowledge purportedly helps to either make sense of the evidence, including other testimony, documentary evidence or physical evidence of fingerprinting. An expert witness may or may not also be a percipient witness, as in a doctor or, May or may not have treated the victim of an accident or crime [12]. In medico-legal, a witness might be compelled to provide testimony in court, before a grand jury, before an administrative tribunal, before a deposition of the autopsy report, Sometimes the testimony is provided in public or in a confidential setting such as grand jury or closed court proceeding). Recalling a witness means calling a witness, who has already given testimony in a proceeding, to give further testimony [11]. A court may only give leave to a party to recall a witness to give evidence about a matter adduced by another party if the second party’s testimony contradicts evidence given by the original witness on direct examination. Witness protection is vital in trials against organized crime, where law enforcement sees a risk for witnesses to be intimidated by colleagues of defendants, (Department of Justice, 2013, In Hon, kong facility service providers, undergo training in mostly tactics of protection, firearms, self-defense, physical and tactical training and they are mostly trained in the use of, and compact handgun as sidearm [14]. Witnesses are usually only permitted to testify to what they experienced firsthand. In most cases, they may not testify about something they were told (hearsay), Expert witnesses, in forensic only testify in the area of their expertise [12].

The United States established a formal program of witness protection, run by the U.S. Marshal Service [1], under organized health Crime Control Act of 1970, while in Italy was officially established in 1991, managed by Central Protection Department. Witnesses are given immunity in exchange for their testimony by being given new identities and live under government protection for several years, or sometimes their entire life [8], they are usually provided with financial assistance, as witnesses regularly must leave their previous employment.

The grant of immunity impairs the witness’s right to invoke the protection against self-incrimination as a legal basis for refusing to testify. Inhibits, making false statements in their testimony [16]. Witness immunity from prosecution occurs when a prosecutor grants immunity to a witness in exchange for testimony or production of other evidence. It is immunity because the prosecutor essentially agrees never to prosecute the crime that the witness might have committed in exchange for the said evidence, the two forms witness immunity: Transactional immunity, blanket, or total immunity), completely protects the witness from future prosecution for crimes related to his or her testimony [8]. Relevance, in the common law of evidence, to give items of crime evidence, to prove or disprove one of the legal elements of the case, or to have probative value to make one of the elements of the case like lier or not. Probative is tendency to prove “Relevant evidence” means evidence having any tendency to make the existence of any fact that is of consequence to determination of the action more probable or less probable than it would be without the evidence, at facility level, Material / Specimen is away to the determine the action and have probative value (have a tendency to make the existence health crime more probable or less probable than it would be without the evidence. Evidence is relevant if it has any tendency to make a fact more or less probable than it would be without evidence; and if consequence in determining the action.
is provable. The initial step in determining relevancy is therefore to identify the “matter properly provable.” Relevancy is not an inherent characteristic of any item of evidence but exists only as a relation between an item of evidence and a matter properly provable in the case. Generally, relevant evidence is admissible [8].

A crime scene is often preserved by setting up a blockade to control movement in and out of a scene as well as maintaining the scene’s integrity. A perimeter is taped off with barricade tape in order to keep only those necessary on site [3, 13]. This is done to prevent contamination of evidence by population health before investigation is complete. Investigators try to avoid contamination at all costs. While it is difficult to completely avoid contamination, many steps are taken to ensure the integrity of the crime scene remains intact [10]. Officers take care to not eat, drink, smoke, or take their breaks near the crime scene. Initial responders are in charge of securing scene by setting up physical barriers to control the traffic in and around the area. The officer also documents his/her initial observations as well as the condition of scene upon arrival. Once the crime scene investigation unit arrives on scene, being sure not to touch anything, an initial walkthrough is performed. This walk through helps the investigators get an understanding of what kind of crime has occurred. The unit notes on the presence of potential evidence and devises a plan for processing crime scene [13]. A second transect walk is performed for the purpose of documentation, by taking pictures and draw sketches of the scene and sampling soil on the victim and one around scene. Sometimes videos are taken to ensure every detail of the crime is documented [5]. After a thorough documentation has been conducted, the CSI unit carefully collects all items that could be considered evidence. These items are tagged, logged, and packaged to ensure nothing is damaged or lost. All evidence from scene is sent to the forensic laboratory for analysis. The forensic laboratory processes all pieces of evidence from the scene. Once the results are in they go the lead detective on the case [10].

Conceptual Statement

Though most studies show how community participation, Forensic training, data collection and filing of evidence influence evidence contamination in our society, there is need to investigate how witness grant immunity influence the reconstruction of quality evidence for jurisprudence.

Figure 1: Conceptual Frame Works
**Figure 2**: Distribution of Public Forensic Sites in Western Kenya

![Map of Western Kenya showing distribution of public forensic sites](image-url)

*Legend*
- International Boundary
- County Boundary
- Hospital
- Teaching and Referral

*Source*: (County’s Administrative and Political Units, 2014)
Methodology

Study Area

Western Kenya covers 25,303.3 km² with 2009 population census of 11,488,949 population health, KBS, (2010), and population Density of 454/km². The region lies at longitude of 33° 37`E to 33°55`E, and latitude 10°8`N, 10°40`S. Facility on the highest altitude is Kitale County Hospital on northern, West is Busia County hospital, Bordering Uganda and Migori on lowest altitude on south bordering Tanzania. Siaya and Mbale County health facilities lies at the Equator [3].

Study Design

Study used Cross-sectional and exploratory designs, where insights investigations of the exposed sampled respondents and their outcome were measured to determine the utilization of medico-legal concepts: Community participation in evidence contamination, to hide political and social cultural differences, quality data collection from crime scene, crime scene reconstruction, skilled and trained forensic service providers, and witness grant immunity,

Sampling Design

Saturated purposive sampling designs were utilized to select and determine the study subjects basing on specific research question. A sampling frame was developed from forensic service providers. The facility was evaluated based on opinions of key informants and on the total number of service provider in relation to factors influencing medico- legal issues present at that point in time. Questionnaires were administered, to the pre-trained forensic personnel. Upon entry into a health facility, service providers or health profession were asked to draw a list of staff present and deal with medico-legal issues. Demographic data were recorded; this process was carried out until the required sample size 76 was obtained from 20 facilities named in the map below from County’s Administrative and Political Units [3].

For qualitative research, Focus Group Discussion FGD and key informant interview KII, guides were administered, explored and sub themes were discussed to saturation with all forensic service providers. Transect mapping and observation (3Ls) by listening, learning and looking on other related factors of medico-legal information not captured in the questionnaire

Sample Size Determination

Determined using [18], formula for proportional with a confidence / risk level of 95% and level of precision / sampling error of 0.05., through a census for a small population.

\[
n = \frac{N}{1 + N(e)^2}
\]

Where

\[
n = \text{Sample size}
\]
\[
N = \text{Population size}
\]
\[
e = \text{Level of precision/ sampling error}
\]

The small population of forensic service providers in western Kenya range between 50 to 200 service providers thus

\[
n = \frac{200}{1 + 200(0.05\times0.05)}
\]

\[
n = \frac{200}{1 + (0.05\times0.05)}
\]

\[
= \frac{200}{1.5}
\]

Sample size = n 133 respondents, actively implementing medico-legal issues.
Questionnaire

Quantitative, exploratory design was used to capture data through by administering questionnaires, to obtained information on demographic profiles, Community participation in evidence contamination to conceal their political or social differences, effect of Data and samples Collected from diagnostic Crime, roles of quality evidence reconstruction from secured diagnostic crime, effect of skilled and trained forensic Service provision among population health and roles of Witness Grant Immunity as a protection mechanism for individuals providing evidence.

Key Informants Interview (KII) Guide and Focus Group Discussion (FGD)

Qualitative research by interviews: Key informants were administered to in-charges of forensic services in the health facilities, mortuary or public health officers and detective police where forensic incidences occur from time to time. The KII guide tailored only respondents who implement medico-legal concepts based on the study specific objectives.

A structured group guide was formulated to gather information on Community participation in evidence contamination to conceal their political or social evils, effect of Data and samples Collected from diagnostic Crime, roles of quality evidence reconstruction from secured diagnostic crime, effect of skilled and trained forensic Service provision among population health and roles of Witness Grant Immunity as a protection mechanism for individuals providing evidence, each (FGD) composed of 3 to 12 representative discussants, selected based on their gender, age, experience, skills, level of education and appropriate technology acquired in forensic science, to ensure homogenous, free, fair and active participation. Discussions were moderated by the lead researcher, while research assistants observed body language and take notes during the discussion.

Results and Findings

Demographic Characteristics of Forensic Service Providers

In our study, 133 respondents of were used in exploratory and cross sectional designs of mixed research, in purposive and saturated sampling designs to collect data, through survey and interview using FGDs, KII and observation guides, were employed during the study. Gender, social expression of a person’s identity in relation to social role and behavior, results indicated that majority 94% (125) of forensic service providers were male with mean of 5.33 in SD of 3.31. Majority of these males had limited knowledge on basic forensic science compared to 6% (8) female counterparts’ who had skills and knowledge on standard operating procedures (SOPs) on quality implementation of medico-legal issues, figure 3 below.

Figure 3: Proportion of gender respondents offering forensic services
Our study also indicated that 80% (106) of forensic service providers in western Kenya work on contract services compared to the few 20% (27) on permanent and pensionable services. Majority of (106) forensic service providers on contract had higher prevalence in evidence contamination at diagnostic crime due to political or social reasons, than permanent service providers who rarely visit the diagnostic crime, OD. (3.4, 0.23).

Figure 4: Proportion of Forensic Services Providers, on Temporary and Permanents, in western Kenya

Further investigations revealed that, most “forensic scientists”, providing services in western Kenya have limited knowledge and skills, in forensic sampling, analysis, data filing and recording in, under lock and key for at least 15 years before being destroyed, with a significant value of P value 0.36, 95% CI (3.3, 1.1). The reasons behind majority working on contract services were due to limited accesses to quality basic and secondary capacity building, hence limited access to required quality forensic skills and knowledge on evidence reconstruction from crime, thus only opt to catch skills from in house training by their mentors (Pathologist or Detective police). Further investigations opined that, forensic scientist employed on permanent basis from both public and private institutions and facilities achieved their forensic skills and knowledge from abroad countries such as South Africa. The study revealed that, majority; over 85% (113) service providers do not have ideas on witness grant immunity with RR (3.6) in our society. Our investigation also established that, the prevalence rates of crime reconstruction among the trained forensic service providers are high compared to untrained forensic service providers with prevalence risks of OD (2.2, 0.24) and Relative risk of RR (1.5) signifying, that more we employ unsuitable and unreliable forensic service providers, the higher we increase the number harmful effects on evidence contamination in our society, thus need to create confidence in our communities by building protective effect of (OD or RR of less than 1), always.

Ways in Which Community May involve in Contaminating Evidence in Diagnostic Crime are:

“Police of crimes carry victim from scene with proper keeping of quality records on photos and video to allow future crime reconstruction, Community changing the anatomical plane or position of the victim before the sight of forensic experts are noted, Community change clothing and removes other expensive jewelries from victim before, photographing in cases of Cap 75. Community covering victim at place of scene before arrival of forensic experts.
During our study, we discovered that, incidences and prevalence of males knowledge and awareness on importance of witness grant immunity are higher than in females with OD (8.3, 0.12), RR (3.33) with estimated risks of 95% CI (1.23, 1.02), which is significant on service provision.

“Surely do African societies provide Witness protection like, in international Criminal courts (ICC) where they also change the voice of the witness?, If it was, most cases will be upheld ,due to existing admissible evidence for jurisprudence.” (KII at tier 6 facility in Kakamega, October, 2017)

Discussion
During the study in western Kenya, 133 respondents were used in an exploratory and cross sectional designs, using survey and interviews, in mixed research, purposive and saturated sampling designs to collect data, from which, 70% (93) respondents were mortuary service providers and 30% (40) were forensic pathologist and detective police. This study is in line with observation made by INTERPOL (2015), and Southerland, (1998) on roles of service providers in partnership with the community and next of kins, to provide admissible evidence that improve service delivery to society, also similar with findings on role of human resources, work with population health to overcome health crisis in developing countries.

Gender results from target population showed that majority 94% (125) of forensic service providers were males with limited knowledge on basic forensic science compared to 6% (8) female forensic service providers who had good knowledge on standard operating procedures (SOPs) on quality medico-legal approaches. These statistics ratios are in line with Australian statistics which opined that it quite normal to find more males working in forensic science than their female counterparts due to nature of work associated with medico-legal, but there is need to have capacity building in forensic science.

The study asserts that majority over 80% (106) of forensic service providers in public institutions /facilities in western Kenya are not trained, work on contract compared to few 20% (27) employed on permanent and pensionable basis, these have negatively influenced the existing bad health and judicial practices, which is in line with study by [19], and indicate that prolonged health challenges in public institutions / facilities are attributed to bad health/ judicial practices such concealing medico-legal evidence, low or no motivations to service providers, job insecurity, inaccessible to witness grant immunity in majority population health, thus main obstacle to achieve quality healthcare.

Conclusion
The study revealed that most communities in western Kenya like Sub Saharan African countries, need to achieve accessible and sustainable forensic knowledge and skill through synergistic partnership between the government and well-wishers to provide grants on Forensic Training and initiate and develop judicial policies on witness grant immunity and enhance evidence chain custody, to promote admissible evidence in and outside courts.

References


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