

**OCCUPATIONAL EPIDEMICS MEDICO LEGAL PROCEDURES, HEALTH  
LAWS AND HEALTH SYSTEM FACTORS ATTRIBUTED TO  
UNCEREMONIOUS MASS GRAVE DISPOSAL OF UNCLAIMED CORPSES  
IN WESTERN KENYA**

**Maurice Barasa Silali**

**A Thesis Submitted in Partial Fulfillment of the Requirements for the Award of  
the Doctor of Philosophy of Public Health of Masinde Muliro University of  
Science and Technology**

**November, 2023**

## DECLARATION

This thesis is my original work prepared with no other than the indicated sources and support and has not been used elsewhere for a degree or any other award.

Signature. ....

Date.....

Maurice Barasa Silali

HPH/H/01-54997/2020

## CERTIFICATION

The undersigned certify that they have read and hereby recommend for acceptance of Masinde Muliro University of Science and Technology a thesis titled “*Occupational Epidemics, Medico-Legal Procedures, Health Laws & Health System Factors Attributed to Unceremonious Mass Grave Disposal of Unclaimed Corpses in Western Kenya.*”

Signature.....

Date.....

**Dr. Maximilla Wanzala**

School of Public Health, Biomedical Sciences and Technology

Masinde Muliro University of Science and Technology

Signature.....

Date.....

**Dr. Nathan Shaviya**

School of Public Health, Biomedical Sciences and Technology

Masinde Muliro University of Science and Technology

## **COPYRIGHT**

This thesis is copyright material protected under the Berne Convention, the copyright Act 1999, and other international and national enactments on that behalf, of intellectual property. It may not be reproduced by any means in full or in part except for short extracts in fair dealing so for research or private study, critical scholarly review, or discourse with acknowledgment, with the written permission of the Director, Directorate of Graduate Studies on behalf of both the Author and Masinde Muliro University of Science and Technology.

## **DEDICATION**

This thesis is dedicated to the Almighty God for his Grace, Gift of life, and academic Wisdom offered to me, and to my sons Innocent, Eugene, Emmanuel, Davis, Austin, Gabriel, and the daughter, Maryanne, for their peace of mind that encouraged me to make it a reality.

## ACKNOWLEDGEMENTS

The success of this thesis has been influenced, by efforts and continued support from several persons namely, Dr. Nathan Shaviya and Dr. Maximilla Wanzala. Peter Kiama, CEO, Independent Medico Legal Unit (IMLU). Directors of National Registration of Persons, Ministry of Health, and CID Headquarters. However, few distinctly sent out great insights, and whom I would specifically appreciate. Firstly, I express my sincere gratitude to CEO IMLU for the kind sponsorship of data collection and publication of the research work, and Mr Mungai from the Government Chemist for his insight and guidance on Mitochondria & Nuclear DNA processing from Bones, cartilages, and Body Fluid samples respectively and Prof Stephen Odebero for his deep great insight guidance in thesis write up from Directorate of Post Graduate Studies in Masinde Muliro University of Science and Technology.

Secondly, I express my gratitude to the forensic Pathologists from western parts Kenya, the Directors of Moi Teaching and Referral Hospital MTRH and Jaramogi Oginga Odinga Teaching and Referral Hospital JOOTRH, and Directors of County Health Facilities, and Mortuary/ forensic service providers from public health facilities from western Kenya for volunteering their time to participate in the study.

Lastly, many people sacrificed their comfort, to enable me to produce this thesis, and I acknowledge them.

## ABSTRACT

In Kenya, Next of Kin may not find any transpired unclaimed or missing corpses, due to the skewed uptake of medicolegal procedures and health system factors. An increased uptake of health laws and propagated occupational epidemics, that influence infection prevention control measures, as primary prevention in western parts of Kenya. The negative impacts are mainly attributed to the limited and skewed existence of an integrated functional department of forensic sciences, which is centrally managed in a single command unit of the core disciplines of forensic medicine. Also, there is scarce utilization of quality behavioral knowledge, Attitudes, and practices among mortuary and forensic service providers to improve healthcare. Failure of national police services to rub in medicolegal procedures has instigated Public health officers and Resident Magistrates to exploit Health laws governing medicolegal procedures, mainly Public Health Act, CAP 242 and Local Government Act, CAP 265, to mediate improper unceremonious mass grave disposal, using affidavits and court orders for justice and accountability, as per Human Anatomy Act Cap 249 and Tissue Act Cap 252. Persistence congestions and overcrowding of unclaimed corpses continue to pose big challenges on propagated occupational epidemics, such as psychosocial, chemical, biological, ergonomic, and physical hazards and infectious diseases or conditions, such as Hepatitis, Cholera, Tuberculosis, and skin diseases. Yet, since independence, no studies in Kenya that have been done to mitigate, the occupational epidemics, medicolegal procedures, health laws & health system factors attributed to unceremonious mass grave disposal of unclaimed corpses by public mortuaries. Thus an infringement of the Human Bill of Rights. Therefore, the need, to determine occupational epidemics, medicolegal procedures, health laws, and health system factors, attributed to unceremonious mass grave disposal of unclaimed corpses by public mortuaries. Specifically, determine occupational epidemics; determine medicolegal procedures and health laws. Determine health system factors attributed to unceremonious mass grave disposal of unclaimed corpses, and establish how knowledge attitude & practices, (KAP) of mortuary and forensic service providers influenced the study outcomes. Descriptive cross-sectional and cohort study designs were used in mixed research approaches of primary and secondary study populations. Active cluster purposive census, snowball, and Passive rapid retrospective desk reviews of unclaimed corpse records of the last 5 years were exploited sampling techniques. Instruments and tools used were semi-structured questionnaires, retrospective desk review forms, Key Informant Interviews, (KIIs), Focus Group discussions, (FGDs), and observation guides. Data management was by excel and SPSS version 26, to outline descriptive, frequency analyzes and statistical inferences. Odds ratio (OR) and relative risks (RR), established attributable exposure risks. Qualitative data were analyzed by categorization of Sub-themes and triangulations of verbatim. In this study, there is No occupational epidemics, but majority (66%) of mortuary and forensic service providers were affected by psychosocial hazards with RR of (0.59,0.17), OR (0.58) from the society. From the 3908 unclaimed corpses admitted in the last 5 years. 3030 were adults, and 878 were the law's neglected minor cohorts. 42% (1273), adult unclaimed corpses, were improperly unceremoniously mass grave disposal using court orders, of which 89% were adult males and 11% were females. Uptake of quality fingerprints & DNA appraisals was only 0.051%, with attributable risks of RR (1.0, 0.97), and OR (0.97) of the national police service failure to implement. Still, only 41% autopsies, were dissected on previously unclaimed corpses. Likewise, 83% of mortuary and forensic service providers had skewed KAP on quality mortuary and forensic management. But, most PHOs, 85% had appropriate technologies on health laws uptakes, besides scarce quality behavioural KAP on uptake of medicolegal procedures and proper forensic unceremonious mass grave disposal in public cemeteries. Thus, need for holistic and comprehensive Policy amendment on mortuary and integrated forensic management by GOK to mediate persistent improper unceremonious mass grave disposal of unclaimed corpses by construction of ultra modern DNA plant and also enable integrated forensic sciences Departments under one command management as a mitigation measure to the study out

## TABLE OF CONTENTS

<b>TITLE PAGE</b> .....	<b>i</b>
<b>DECLARATION</b> .....	<b>ii</b>
<b>COPYRIGHT</b> .....	<b>ii</b>
<b>DEDICATION</b> .....	<b>iv</b>
<b>ACKNOWLEDGEMENTS</b> .....	<b>v</b>
<b>ABSTRACT</b> .....	<b>v</b>
<b>TABLE OF CONTENTS</b> .....	<b>vii</b>
<b>APPENDICES</b> .....	<b>xiv</b>
<b>LIST OF TABLES</b> .....	<b>xi</b>
<b>LIST OF FIGURES</b> .....	<b>xiii</b>
<b>ACRONYMS AND ABBREVIATIONS</b> .....	<b>xiv</b>
<b>DEFINITION OF TERMS</b> .....	<b>xvi</b>
<b>OPERATIONAL DEFINITION OF TERMS USED IN CONCEPTUAL FRAMEWORKS</b> .....	<b>xix</b>
<b>CHAPTER ONE:INTRODUCTION</b> .....	<b>1</b>
1.1 Background of the Study.....	1
1.2 Problem Statement .....	8
1.3 Justification of Study .....	11
1.4 Study Objectives .....	13
1.4.1 Broad Objective .....	13
1.4.2 Specific Objectives.....	13
1.5 Research Questions .....	14
1.6.Significance of the Study .....	14
1.7 Scope and Limitation of the Study.....	16
1.7.1 Scope of the study .....	16
1.7.2 Delimitation of Study .....	17
<b>CHAPTER TWO:LITERATURE REVIEW</b> .....	<b>19</b>
2.0 Introduction .....	19
2.1.1 Prevalence of Occupational Epidemics in Public Mortuaries Attributed to Delayed Uptake of Mortuary and Forensic Services on Unclaimed Corpses .....	19

2.1.2 Impacts of Mortuary and Forensic service ProvidersExposures to Congested and Overstayed Unclaimed Corpses in Public Mortuaries.....	22
2.2 Basic Infectious Epidemics Attributed to Exposure to Unclaimed Corpses, in “Cold Hit” Investigations. ....	25
2.3 MedicoLegal Procedures and Health Laws Attributed to Unceremonious Mass Grave Disposal of Unclaimed Corpses by Public Mortuaries.....	28
2.3.1 Trends Uptake of Medico-Legal Procedures and Health Laws Attributed to Increased Unceremonious Mass Grave Disposal of Unclaimed Corpses .....	32
2.3.2 Roles of Secured Network 1-24/7 Police Service Signal 7, 8 and Interpol Yellow Views Notices to Search for NOK and DNA Appraisals.....	33
2.3.3 Roles of the Primary Witness at Diagnostics Triangle to Establish Manner of Death .....	35
2.4 Health Systems Factors Attributed to Unceremonious Mass Grave Disposal of Unclaimed Corpses by Public Mortuaries.....	37
2.4.1 Forensic Capacity Building, Recruitment and Staffing of Mortuary and Forensic Service Providers.....	39
2.4.2 Capacity Building in Mortuary and Forensic Sciences Empowerments.....	40
2.4.3. Accessibility to Interpol Yellow notices, Equipment and Potency Reagents as Basic Health System Factors.....	41
2.4.4. Uptake of Infection Prevention Controls Measures when Handling Unclaimed Corpses in Public Mortuaries .....	42
2.4.5 Infection Prevention Control Guidelines when Handling Human Remains ...	43
2.4.6 Safety Precautions and Safe Environmental Health Controls during Mass grave Disposal in Public Cemeteries.....	44
2.5. Behavioral Effect on KAP by Mortuary and Forensic Service Providers on Occupational Epidemics, Medicolegal procedures Health laws and Health System Factors Attributed with Unceremonious Mass Grave Disposal .....	45
2.6 Theoretical Statement.....	47
2.7 Conceptual Statement .....	48
2.8Conceptual Frame Works, on Variables InfluencingMass grave Disposal of Unclaimed Corpses by Public mortuaries in western Parts of Kenya.....	49
2.9 Study Summary and Research Gaps .....	<b>51</b>



<b>CHAPTER THREE:MATERIAL AND METHODS.....</b>	<b>56</b>
3.1 Study Area.....	56
3.2 Study Designs .....	58
3.3 Study Population .....	60
3.3.1 Inclusion Criteria for Target Population .....	62
3.3.2 Exclusion Criteria of the Study Population.....	63
3.4 Sample Size Determination.....	64
3.5 Study Variables .....	66
3.6 Data Analysis Plan as per Each Specific Objective .....	70
3.7 Sampling Techniques .....	69
3.7.1 Data Collection Strategies.....	69
3.8 Data and Information Collection.....	73
3.8.1 Procedure for Data Collection.....	74
3.8.2 Mixed Data Collection and Instruments Development.....	74
3.8.3 Reliability of Instruments.....	76
3.8.4 Validity of Instruments .....	76
3.8.5 Quality Assurance of Study Instruments and Tools.....	77
3.8.6 Pre-Testing of Research Instruments and Tools .....	77
3.9 Data Processing and Presentation .....	78
3.10 Logistics and Ethical Consideration .....	79
3.11 Dissemination of Results.....	80
<b>CHAPTER FOUR:RESULTS AND FINDINGS .....</b>	<b>82</b>
4.0 Introduction .....	82
4.1.1. Characteristics of Study Facility Mortuaries .....	82
4.1.1 Demographic Characteristics of Primary Study Population (Mortuary & Forensic Service Providers) .....	84
4.1.2Distribution of Propagated Occupational Epidemicsin Public Mortuaries Attributed to Congestions and Overstayed Unclaimed Corpses .....	87
4.2.1Distribution of Unclaimed and Previously Unclaimed Corpsesin Public Mortuaries in Past 5 Years and 3 Months of Data Collection.....	90
4.2.2Determinants of Law Neglected Minor Cohorts in Unclaimed Corpses .....	97

4.2.3 Uptake of Latent Finger Prints Abstraction and DNA Appraisals as Health System Factor.....	99
4.3.1 Roles of National Police Services, Public Health Officers, and Resident Magistrates, as Basic Health System Factors of Unceremonious Mass Grave Disposal of Unclaimed Corpses .....	104
4.3.2 Prevalence Autopsies Dissected on Previously Unclaimed Corpses from (2017-2021) and 3 Months of Data Collection in Western Parts of Kenya.....	106
4.4 Professionalization of Mortuary and Forensic Services, as Health System Factors of Medico Legal Procedures and Behaviors Change of KAP.....	110
4.5 Capacity Building in Mortuary and Forensic Service Providers in Forensic Medicine, as Health System Factor to Reduce Unceremonious Mass Grave Disposal.....	111
4.6 Effect of Quality Behavioral KAP of Mortuary and Forensic Service Providers in the Uptake of Infection Prevention Control of occupational Epidemics, Medicolegal Procedures, and Health laws Applications.....	114

**CHAPTER FIVE: DISCUSSION OF THE RESULTS AND FINDINGS .....116**

5.0 Introduction.....	116
5.1. Determining Main Occupational Health Epidemic Risks Attributed to Unceremonious Mass Grave Disposal. ....	116
5.2 Uptake of Medico-Legal Procedures and Health Laws as Main Health System Factors Attributed to Unceremonious Mass Grave Disposal of Unclaimed Corpses .....	118
5.3 Determining Health Systems Factors Attributed to Unceremonious Mass Grave Disposal of Unclaimed Corpses in Public Cemeteries.....	120
5.4 Establishing Mortuary and Forensic Service Providers' Quality Behavioral Knowledge, Attitude, and Practices to Influence Unceremonious Mass Grave Disposal.....	122

**CHAPTER SIX : SUMMARY, CONCLUSION, AND RECOMMENDATION .....124**

6.0 Summary .....	124
6.1 Conclusion .....	125

6.2 Recommendations .....	126
<b>REFERENCES</b> .....	<b>128</b>
<b>APPENDICES</b> .....	<b>134</b>

## LIST OF TABLES

TABLE	PAGE
Table 3.1: Distribution of Study County Facility Headquarters in Western of Kenya, with Mortuaries Facilities fo Study .....	57
Table 3.2: Dispersal of Primary Study Population in Western Parts of Kenya .....	62
Table 3.3: Distribution of Target Study Population (Mortuary and Forensic Service Providers) .....	66
Table 3.4: Study Variables with their Exact Measurable Indicators.....	67
Table 4.1: Health Facilities’ Characteristics in the Study Area .....	83
Table 4.2: Distribution of the <i>Religious</i> Cohorts among the Respondents.....	86
Table 4.3: A summary of the total Numbers of unclaimed Corpses (Fetus, Juvenile and Adult Cohorts), Unceremoniously Mass Grave Disposal Using Court Orders Approvals for the Last 5 years, (2017 to 2021) and 3 Months of Data collection. ....	95
Table 4.4:Distribution of Adult Unclaimed and Previously Unclaimed Corpses Admitted in 20 Selected Public Mortuaries from (2017-2021) and 3 months of Data collection .....	96
Table 4.5:The Established Law Neglected Minor Cohorts of Unclaimed Corpses ...	98
Table 4.6:Prevalence of Autopsies Achieved on Previously Unclaimed Corpses in Public Facility Mortuaries from, (2017 -2022) and in 3 Months of Data Collection BN .....	107
Table 4.7: Dispersals on Effect of quality Behavioral KAPof Mortuary and Forensic Service Providers to Influence Unceremonious Mass Grave Disposal of Unclaimed Corpse, using Likert Scale 5 Ratings Model.....	115

## LIST OF FIGURES

<b>FIGURE</b>	<b>PAGE</b>
Figure 2.1: Conceptual Frameworks on the Study.....	50
Figure 4.1: Characteristics means of the Study Respondents in the study area.....	85
Figure 4.2: Distribution of Terms of Service in Mortuary and Forensic Service Providers.....	85
Figure 4.3: Prevalence occupational Epidemics, when Exposed to Unclaimed Corpses.....	88
Figure 4.4: Basic Epidemic Risks Exposed Mortuary and Forensic Service Providers.....	90
Figure 4.5: Distribution of Adult unclaimed corpses admitted in public mortuaries from (2017-2021) and 3 months of data collection by gender.....	91
Figure 4.6 Demonstrate total number of previously Adult unclaimed corpses equivalent to death certificate issued to mediate cermonoius disposal (burial or cremation).....	93
Figure: 4.7: Distribution of Adult Unclaimed and Previously Unclaimed Corpses about the Uptake of MedicoLegal Procedures, (2017- 2021), and 3 months of data collection.....	101
Figure 4.8: Autopsies Prepared on Previously Unclaimed Corpses by Gender.....	103
Figure 4.9: Uptake of MedicoLegal Procedures by the National Police Services and health Laws by PHOs and Resident Magistrates achieved in the last 5 years and 3 months of Data Collection.....	105
Figure 4.10: Defines, the Levels of Education and Training Achieved by the Respondents, as the Health System Factor in mortuary and Forensic Service Provision.....	112

## APPENDICES

APPENDIX	PAGE
APPENDIX I: Proposal Approval .....	135
APPENDIX II: Ethical Approval.....	136
APPENDIX III:NACOSTI PERMIT .....	137
APPENDIX IV: Informed Consent Form .....	138
APPENDIX V: Map of Western Kenya.....	139
APPENDIX VI: Semi Structured Questionnaire .....	140
APPENDIX VII: Retrospective Review Form .....	156
APPENDIX VIII: Key Informant Interview (KII) /Focus Group Discussion (FGD) Guides.....	161
APPENDIX IX: Observation Checklist.....	165
APPENDIX X: Amputated Hands And Adult Unclaimed Corpses Drowned In Water Bodies To Conceal Forensic Identification .....	172
APPENDIX XI: Typical Embalming By Arterial Punctureto Improve .. Mortuary Hygiene & Sanitation .....	174
APPENDIX XII: Sample Of Court Order To Enable Justice Accountability . for Mass Grave Disposal.....	175
APPENDIX XIII: Sample of Affidavit Raised In Facility To Process Court .... Order By Resident Magistrate For, Consents, Justice and Accountability of Human Remains .....	176
APPENDIX XIV: Mitochondria Dna Bone Grinding Mill Connected to Liquid..... Nitrogen Gas.....	177
APPENDIX XV: Liquid Nitrogen Connected on Transfer Lines to enable Dna Sample Processing From Bones At Very Low Temperatures.....	178
APPENDIX XVI: Dna Gender Quantifying Reagent Kit: Describe If The..... Unclaimed Corpse Is Male Or Female .....	179
APPENDIX XVII: Latent Finger Print Abstraction .....	180
APPENDIX XVIII: Interpol Yellow View Notices Uploaded To The Internet For Next Of KinTO Search Unclaimed Corpses .....	181
APPENDIX XIX: Sample Of Notice Board Notification To Population Health Of Unclaimed Corpses Due To Mass Disposal .....	182
APPENDIX XX: Proper Unceremonious Mass Grave Disposal of Unclaimed ..... Corpses .....	183
APPENDIX XXI: Improper Unceremonious Mass Grave Disposal Of .... Unclaimed Corpses .....	184

## **ACRONYMS AND ABBREVIATIONS**

<b>ACDP</b>	Advisory Committee on Dangerous Pathogens
<b>BID</b>	Brought in Dead
<b>CAP</b>	Chapter in the section of laws and constitution
<b>CHMTs</b>	County Health Management Teams
<b>CID</b>	Criminal Investigation Department
<b>CORPs</b>	Community Owned Resource Persons
<b>FBOs</b>	Faith-Based Organizations
<b>FGDs</b>	Focus Group Discussion
<b>GRSP</b>	Global Road Safety Partnership
<b>IMLU</b>	Independent Medical Legal Unit
<b>IPCT</b>	Infection Prevention Control Team
<b>KAP</b>	Knowledge Attitude Practice
<b>KII</b>	Key Informant Interviews
<b>MG</b>	Mass Grave
<b>MRSA</b>	Methicillin resistant staphylococcus aureus
<b>NOK</b>	Next of kin.
<b>PPP</b>	Public Private Partnership

<b>RTA</b>	Road Traffic Accident
<b>NPIs</b>	Non-pharmaceutical Interventions
<b>SPSS</b>	Statistical Package of Social Science
<b>SWAPs</b>	Sector-Wide Approaches
<b>WPD</b>	World Population Data



## DEFINITION OF KEY TERMS

**Cold hit:** Criminal investigation on unclaimed corpses, where one or more connections are made between a crime victim, perpetrator, and crime scene in the absence of an investigative leader and primary witness at the diagnostic triangle.

**Coroner Service Act, 2017** Provide integrated investigation services under one management involving:  
pathologist services: mortuary and autopsy, histology, toxicology, and hospital management. Provide accountability for death to authorities. Help to resolve mysterious deaths. Through the uptake of the coroner Act 2017. Section 5, formal inquest, section 29 power to collect admissible evidence for forensics, section 39 prohibits contamination of evidence. Section 24-25, criminal procedure to provide medical findings. In addition, the section 44 enables AG's power to exhume human remains for the second opinion.

**Corpse** Physical remains of an expired human being before complete decomposition under criminal investigation.

**Embalming:** A chemical method used on unclaimed bodies to stop post-mortem changes caused by cathepsin

enzymes and autolytic bacteria as a primary source of infection control and prevention practices of health risks epidemics.

**Forensic medicine:** Deals with medical aspects of law and medico-legal procedures.

**Forensic pathology:** Synergistic partnership of integrated services, to discover and achieve criminal justice support in public health

**Improper Unceremonious Mass grave Disposal:** Lack of mass grave disposal in shallow graves with earmarked aluminum tags on appendages for future exhumation to enable Mitochondria DNA comparison in the presence of NOK

**Interpol Yellow Notices** Issued to help locate unclaimed corpses or missing persons, or minors, who are unable to identify themselves.

**Police service Act, 2011, section (55)** Outlines the powers of the police services to upload photos of Interpol yellow view to notices, carry out forensic identification and search NOK for DNA appraisals & autopsy.

**Manner:** Natural, accident, suicide, homicide, still birth, or undetermined cause of death as curtailed by primary witnesses and site of the dead at the scene

**Natural death**

God plans dead such as old age, chronic diseases, and conditions,

**Unclaimed Corpse**

Dead person / missing from next of kin found dead at the crime of scene without an Identification patch/card in his or her nation /state

**Unceremonious Disposal**

Any method of disposal of human remains in the absence of NOK but consented by legal justice for accountability roles.

**Unnatural death**

Man and woman plans dead such RTA, murders of homicides or suicides, minors, and fetus abandonment in public toilets or pushes and abortion in college toilets or pushes.

## **OPERATIONAL DEFINITION OF TERMS USED IN CONCEPTUAL FRAMEWORKS**

- Occupational Epidemics-** An object or environment that is potentially harmful to population health, such as chemical, psychosocial, biological, physical, and ergonomic and work organization **hazards** exposed by mortuary / forensic service providers.
- Infectious risks-** Contagious biological infections, that have a probability of spreading among mortuary and forensic service providers to the rest of the health population. Through inhalation or contact with unclaimed corpses examples of infectious risks with probabilities to spread are pulmonary Tuberculosis, cholera, Hepatitis B & C antigens, HIV/ AIDS, skin infections, integument maceration by formalin, and leukemia.
- Medico legal procedures -.** Standard medico-legal frame works. Stipulated in penal code CAP , 63 § 75, National coroner Act, 2017, National police Act, 2011, section 55, for Police services and other forensic service providers. To execute forensic services, within 90 days of cold storage in the “cold hit” of an unclaimed corpses to enable forensic identification and DNA comparisons from

NOK, using secured 1-24/7 networks and yellow view notices to the general population, to help search and identify the deceased or missing juvenile cohorts. Autopsy dissection mediates to notify the government of the cause and nature of death, as per the Birth and Death Registration Act CAP 149. Unceremonious mass grave disposals are implemented by using Health laws, due to complete failure, in the application of standard medico-legal frame works by Police services, specifically on forensic finger prints Identifications, and DNA comparison, which form the bench map of dignified disposal of previously unclaimed corpses.

**Health laws -**

Laws governing medical legal procedures that, effect unceremonious mass grave disposal in public cemeteries, justice and accountability of Human Remains: Public health Act CAP 242, sections 38-45 on isolation and quarantine, section 138 – 146 on disposal and exhumation procedure. Local government Act CAP 265 section 201 on by-laws on the provision of cemeteries by County governments. Affidavits and court to enable justice and accountability via PHOs and resident magistrate uptakes as per

Human Anatomy Act 249 on human remains consenting, human tissue Act CAP 252 on utilization for therapy or cadavers.

**Health system Factors -**

Overall variables that will effect, the dignified disposal of previously unclaimed corpses, such as professionalization of mortuary /forensic services, as per its core disciplines of forensic medicine entail: Forensic fingerprint identification, Forensic pathology, Forensic anthropology, Forensic odontology, Forensic laboratory medicine, Forensic entomology, forensic radiology, Photography, Molecular biology, and Mortuary science. It also counter checks on serviceability of cold storage of cold hit, regular capacity building in forensic science, and accessibility of yellow view notice to population health to enable accessible search and identification of deceased by NOK as per the Criminal penal code of Kenya, CAP 63 § 75, coroner act 2017, and National police service Act 2011, section 55.

**Knowledge, Attitude, and Practices,-** Main proximate factors that affect the outcome of the decrease or increase of the improper unceremonious mass disposal of unclaimed corpses in western parts of Kenya, as per Maslow's theory of motivation of workers as work morale and satisfaction.

## CHAPTER ONE

### INTRODUCTION

#### 1.1 Background of the Study

World Population Data (WPD) sheet established that global population mortality of unclaimed corpses in developing countries is over 44 million, per annum for the dispersed demographic cohorts, (Montañez-Hernández *et al.*, 2020). The majority 38,720,000, (88%), of the global unclaimed corpses, are in Sub Saharan Africa (SSA). Similarly Kenya, which, records over 1.2 million unclaimed corpses mortalities squarely in the demographic cohorts with several manner of death annually of which, 756,000, (63%, ), (Pankaj and Singh, 2017). Which are attributed to road traffic accidents, brought in death, (BID), homicides, fetus and juvenile abandonment in bushes or latrine /toilets, and suicide. Justwith scarce similar reports in western parts of Kenya, which end up being buried, in an improper unceremonious mass grave disposal, as per local government Act CAP 265, section 201, excavation of mass graveyards of more than 6 feet deep holes, unclaimed corpses labeled with strapping on the fore head written as “Unknown body”, Then mass graved in none earmarked graveyards, with sampling frames/ registers from the specific public mortuary, as per Public Health Act CAP, 242 section 146.

Propagated, occupational epidemics include, hazards and infectious risks attributed totallack of embalmmnt on all unclaimed corpses, to preserve the secured crime evidence of medicolegal procedures.Any type of embalment of such bodies may conceal secured forensic evidence, before criminal trials at autopsy dissections, (De Goyet, 1999; Correia *et al.*, 2014; Castro & Coyle, 2013). Unclaimed corpses also form frameworks of Core international medicolegal legal obligations and rights, to be



presented by Next of Kin (NOK), during autopsy and any form of disposal, be it cremation or burial (Silving, 1974; Mutethia, 2020). These rights are usually binding globally, regionally and locally.

like in the western parts of Kenya. Thus requires synergistic participation and keen observations, during the implementation of mortuary and forensic services, (Paripurna *et al.*, 2018; Illes & Wilson, 2020).

The baseline survey, expert observation survey, and need assessments were evaluated in western parts of Kenya using strengths, weaknesses, opportunities, and threats (SWOT) analysis, and rapid desk reviews on the secondary study population. Demonstrated that, the study area, is constantly being affected by perpetual increased, accumulation and congestion of unclaimed corpses in public mortuaries, (Franco *et al.*, 2002; Kazunguet *et al.*, 2015). Posing a great occupational health epidemics and social economic challenge on quality healthcare, with increase in scanty and skewed uptake of hygiene and sanitation mitigations, (Montañez-Hernández *et al.*, 2020; Chen *et al.*, 2004). An overwhelming increase in unclaimed corpses results in the piling of one unclaimed corpse to another, without proper embalment and disinfection interventions, since they inhibit admissible pieces of evidence at the autopsy dissection, (Hess *et al.*, 2014; Nyaberi *et al.*, 2014). Congestion in cold rooms is attributed to scarce cold rooms to accommodate the increasing fetus, juvenile, and adult unclaimed corpses, waiting for subsequent medicolegal procedures to enable forensic identification and DNA appraisals, as per the national coroner Act 2017 and the National police service Act, 2011 section (55), (Silali, 2017; Hess *et al.*, 2014).

Decomposition of unclaimed corpses is associated with basic autopsy changes, due to deprived preservation methods in cold rooms for storage, as a main health system factor, that heightens the autopsy changes, which include mainly autolysis, caused by cathepsin enzymes and putrefaction bacterial which first normal flora of the unclaimed corpses before dead, (Hess *et al.*, 2014;Fusco *et al.*, 2016). Autopsy changes continue to negatively influence propagated occupational epidemics among mortuary and forensic service providers, besides the visiting population health, (De Goyet, 1999; Noji, 2000;. Brenner, 2014;Cocco, 2002). Occupational epidemics may be acquired mainly, by of contact or inhalation of the infective biological hazards, (A Moran and Onwube, 2013;Silaliet *al.*, 2017). Such as infectious fungi, hepatitis A, B & C, tuberculosis, and cholera. Leukemia is attributed to chronic exposure to formalin, (Agha, 2012; Marangu, 2020;. WHO, 2015; Correiaet *al.*, 2014).

Most propagated occupational epidemics are compounded with scarce and skewed behavioral knowledge, attitude, and practices by mortuary and forensic services providers to influence quality health care in public mortuaries, (De Goyet, 1999; Noji, 2000; Fusco *et al.*, 2016; Abiodun &Abioro, 2014). Whose current status in the study area remains unclear.

Medico legal obligations of forensic medicine, consist of searching for missing persons or dead or unclaimed corpses by National police services, using secured networks called police signals number 7 and 8, and also forensic photos uploading on the Interpol yellow view notices of the unclaimed corpses, to enable reliable and efficient accessibility by NOK, as per National police service Act, 2011 and National coroner Act, 2017. There is often vital needs to label and preserve any personal effects of unclaimed corpses, as secured evidence for the, (Next of Kin) NOK, and subsequent

forensic identification DNA appraisals to notify the government, on the intermediate cause and nature of death, after autopsy dissection, as per CAP 149 of birth and death registration Act, (Castro & Coyle, 2013; M. B. Silali, 2017; Mutethia, 2020). There is various manners of deaths attributed to medicolegal procedures that affect the population's health, including fatal injuries from traffic road accidents (RTA), induced abortions, homicides or suicide, (murder), shooting, and juvenile abandonments in public bushes or toilets, (Paripurna *et al.*, 2018; Cox *et al.*, 2011). Bereaved families may be in search of unclaimed corpses, which will remain null and void, for their entire live, due to the scarce uptake of digital uploads of deceased photographs at the scene of the crime and then upload on Interpol yellow view notices at central points secured by forensic science department, besides limited and skewed uptake of police signals number 7 and 8, as per National Police Act, 2011 section 55, (Huffine *et al.*, 2001; Mutethia, 2020), to enable NOK to search and identify their deceased or missing persons, before the expiry of 90 days of forensic inquiry period, (Cole, 2004; Komarinski, 2005).

Failure of national police services to implement quality medico-legal procedures before the span of 90 days of cold storage of “coldhit” investigations on unclaimed corpses become noticeable for PHOs and Resident magistrates to utilize Health laws governing medico-legal procedures, as a primary prevention population health. Thus, PHOs and Resident magistrates influence improper unceremonious mass grave disposal of unclaimed corpses in public mortuaries, which is an infringement of Chapter 4 of the Bill of rights to life from the conception, (Mutethia, 2020; Silving, 1974). Dead is sudden, hence when it happens in a diagnostic triangle crime scene, where no one is in the position of an identity patch or National Identity card. It May

often result one to be an unclaimed corpse in his or her county of birth. During this episode, family members, friends, or relatives, will not have any idea about the whereabouts of said missing dead persons. Such dead persons become unclaimed bodies and are admitted in specific public mortuaries approved by the MOH and department of forensic sciences, for a span of 90 days. Since there is no claimant yet, after the 90 days on cold storage of "cold hit" investigations for medicolegal cases, or 21 days for clinical or inpatient dead cases, (Pankaj and Singh, 2017; Beavan, 2001). their files are closed by respective National police services, who admitted the unclaimed corpses in the morgue to enable subsequent procedures of mass disposal, by PHOs and Resident magistrates, to provide court orders that enables justice and accountabilities, as per Human anatomy Act Cap 249 and Tissue Act Cap 252 of Kenyan laws.

Health systems factors are the cradle for quality mortuary and forensic service management, holistically and comprehensively, which is achieved by integration of the core disciplines of forensic medicine into one unit of command management, such as forensic fingerprint identification and tracking of unclaimed persons NOK, Pham *et al.*, 2020). Forensic pathology, forensic anthropology, forensic odontology, and forensic laboratory medicine. Forensic entomology, forensic radiology, Photography, Molecular biology, and Mortuary science, Chen *et al.*, (2004). Quality uptake of health system factors also include utilization of embalment machines and methods, regular stock replenishment or essential reagents and disinfectants, and serviceable refrigeration of cold rooms, (Fusco *et al.*, 2016; Brenner, 2014). Whose details in the western parts of Kenya remain undocumented?

Recruitment of quality human resources from medical laboratory science, specializing in Histopathology and mortuary science, is essential for the sustainability of forensic programs at the facility level, (Abiodun & Abioro, 2014; Chen *et al.*, 2004). Besides accessible and reliable continuous capacity building on both infection prevention control and forensic medicine among mortuary and forensic service providers, Kazungu *et al.*, (2015). Accessibility of reliable and valid revised forensic standard operating procedures SOPs, to enable sustainable infection prevention controls of occupational epidemics and increase dignified disposal of the previous unclaimed corpses, as per specific religious and cultural rites, should be encouraged by this study, (Percy, 2005; Marangu, 2020; Bedoya *et al.*, (2017). Health system factors provide mortuary policy guidelines, availability on cold storage, of “cold hit” investigation to mediate forensic identification, and search for NOK to enable DNA appraisals, as per National police act, 2011 section 55. But, the law neglected cohorts, (fetus and juvenile) of unclaimed corpses, which remain the main none beneficiaries of forensic identification and DNA appraisal, since the independence of Kenya. Similarly, forensic infrastructural social amenities, equipment, installation, essential reagents, forensic capacity building, of the human resource are significant for the growth of health system factors to mediate for dignified disposal of previously unclaimed corpses, by regular execution of quality medicolegal procedures promptly, (Percy, 2005; Silali *et al.*, 2017). Also, these service providers need capacity building and good skills in the following areas, breathing alcohol, substance control, digital and multimedia evidence for Interpol view yellow notices, firearms and tool marks, and toxicology. Forensic biology / histology, qualitative photographing of the crime scene witness, and another core discipline of forensic medicine, (Iliyasu *et al.*, 2016; Fusco *et al.*, 2016)

However, the implementation of health system factors in western parts of Kenya remains insufficiently established and undocumented.

In 2016, global investigations, on the quality KAP of mortuary / forensic service providers, (Haines and, Iliyasu *et al.*, 2016). Established that quality service provision of unclaimed corpses, by mortuary and forensic service providers, is determined by quality uptake of specific functions of human personality, and unconscious ego defense mechanism, as directed by specific capacity building for individual achieved behavioral KAP, on occupational epidemics infection prevention control, uptake of medico-legal procedures, health laws and quality health system factors implementations. Besides, their inner most wiliness to provide sustainable mortuary and forensic services, to the population health, more effectively and efficiently, (Abdulraheem *et al.*, 2012; Iliyasu *et al.*, 2016).

Documentation on the level of quality behavioral KAP of the mortuary and forensic service providers, in western parts of Kenya on quality forensic service provision and healthcare remains unclear. With still increasing propagated occupational epidemics, low uptake of medico-legal procedures, and high uptake of the health laws and skewed health system factors implementation. Besides, existing inadequate quality KAP among mortuary and forensic services providers from the study area, have negatively obstructed the implementation of quality hygiene and sanitation measures on the health population, (Illes and Wilson, 2020).

The study by (Hogg and Vaughan 2002), on social psychology, indicated that mortuary and forensic service providers may only achieve their service satisfaction in unclaimed corpses jurisdictions'. If they are empowered to develop and sustain, proper attitudes /perceptions, on standards of hygiene and sanitation practices, on infection prevention

control. Subsidized capacity building, machinery embalmment, and recruitment of knowledgeable staff, on permanent terms of employment, remain the basic morale virtues, to sustain the functionality of the programs, (Rowe *et al.*, 2005; Silali *et al.*, 2017; Chen *et al.*, 2004).

Thus, the a timely need to ascertain, how occupational health epidemics, medico-legal procedures, Health laws, health system factors and behavioral KAP of mortuary and forensic service providers influence unceremonious mass grave disposal of unclaimed corpses, by the public mortuaries in western pars of Kenya, to enable quality and prevention controls on the infringement of the human Bill of Rights to life in the society.

## **1.2 Problem Statement**

Propagated occupational epidemics, attributed with exposures to congested and overstayed unclaimed corpses in public mortuaries, in cold storage with “coldhit” investigations continue to rise in public mortuaries as the cases await for medico-legal procedures evaluations. Include, Psychosocial, chemical, biological, ergonomic, physical, and work organization hazards, Iliyasuet *et al.*,( 2016). The probability of these increase occupational epidemics to cause various outbreaks or injuries to mortuary and forensic service providers in western parts of Kenya remain unclear and undocumented. The main propagated occupational epidemics affection mortuary and forensic service providers globally and regionally are, tuberculosis, Hepatitis A, B, and C infections, HIV/ AIDs, and skin diseases. Lung cancer is associated, with longer exposure to formalin, during embalment, (De Goyet, 1999; Noji, 2000; Hauptmann *et al.*, 2009;Mara and Evans, 2018). In western parts of Kenya the magnintitude of propagated occupational health epidemics, remain undiscovered skewed and limited.

Medicolegal procedures and health laws applied in Kenya, are itemized, clearly in the constitution of Kenya, as per the criminal penal code of CAP 63 and 75, National coroner Act 2017, and National Police Act 2011 section 55, to influence low uptakes of improper unceremonious mass grave disposal of unclaimed corpses, by public mortuaries. Yet, there is a protracted failure of National police services to execute quality medico-legal procedures. This has influenced negatively on Public health officers (PHOs), and Resident magistrates to apply health laws governing medico-legal procedures, primary infection prevention control mitigation the larger population's health. The Health laws include Public Health Act CAP 242, (sections 35-42 & 144 -148), and the local government Act CAP 265, section 201 which deals with laws to enable, mass grave disposal in public cemeteries. PHOs also have suffered from flimsy and skewed quality behavioral KAP on the application of quality medico-legal procedures and utilization of basic health system of mortuary and forensic services provisions to decrease improper unceremonious mass grave disposal in public mortuaries. Thus infringements of chapter 4 of the Kenyan constitution, on the Bill of rights, which requires unclaimed corpses, be presented to or by their NOK, during any disposal to mediate their religious and cultural rites.

Health systems factors empower mortuary and forensic service providers to provide quality management of mortuary and forensic services in public mortuaries. Provision of qualified human resources, in a synergistic, holistic, comprehensive, and centrally integrated management, of all core disciplines of forensic medicine, under the department of Forensic science aims at reducing the improved mass grave disposal of unclaimed corpses realized by public mortuaries, like the quality supply of essential supplies for, embalment reagents and machines, (Brenner, 2014; Fusco *et al.*, 2016).



Regular stock replenishment of essential reagents and disinfectants, serviceable refrigeration in facilities (cold storage of “cold hit”), also sustain quality hygiene, and sanitation during the provision of mortuary and forensic services, Franco *et al.*, (2002). And they remain unclear and undocumented in the study area.

But then again in Kenya like western parts of Kenya, no studies have documented how quality health system factors, influence the provision of mortuary and forensic services on unclaimed corpses. Equally, there are no proper reputable recruitment guidelines, put in place on outsourcing or internal sourcing of mortuary and forensic service providers. Besides the the prevailing occasional and skewed-department of forensic sciences where by Kenya has only operationalized partially the forensic pathology section as a department.

Expert and observational survey studies, on behavioral uptake of knowledge, attitude, and practices, (KAP) to influence quality mortuary and forensic service providers demonstrates that 85% of Developing country's public mortuaries, have skewed KAP, on propagated health epidemics, medicolegal procedures, and health system factors to reduce unceremonious mass grave disposal of unclaimed corpses, as per NHS employers' guidelines, 2013. Similarly, as per criminal penal code of CAP 63 and 75, National police service, Act 2011 section 55 and the National coroner Act, 2017 of Kenya, (Agha, 2012; Mutethia, 2020). Whose documentation in western parts of Kenya remains unclear and undocumented.

Therefore, the study seeks to advocate for dignified disposal of previously unclaimed corpses or proper unceremonious mass grave disposal, in earmarked sampling frame works/ mortuary registers, with furrow graveyards excavated, with the lesser depth of 6 feet deep, utilizing aluminum tags on unclaimed corpses appendages, accessible and

reliable future exhumation, as per the Public Health Act 242, section 146 and local government Act Cap 265 section 201.

### **1.3 Justification of Study**

The study is being done when most public mortuaries in Kenya are constantly implementing unceremonious mass grave disposal of unclaimed corpses as instructed in the court orders by resident magistrates and PHOs, due to congested and overstayed unclaimed corpses in western parts of Kenya, attributed to various manner of deaths such as induced fetus abortion, road traffic accidents without in position of national identity cards (IDs), juvenile abandonment in bushes or public forests, murder, suicide, homicide, brought in dead, and shooting which contradicts the chapter 4 of the Bill of rights to life right from the conceptions. Currently most the unclaimed corpses, are improperly labeled to mediate forensic identification, by using facility white strapping on the fore head, “Unknown body”. Instead of using the standard tagging of the aluminum metals, tagged on appendages for future forensic identification; Abbas *et al.*, 2011), thus the urgent need for epidemiologic forensic remedies and mitigations via this research study.

Similarly, the study is being carried out at the time of noted great deficiency inapplication of the medico legal procedures involving the national coroner Act, 2017 and National Police Act, 2011 section 55, by the National police services to influence prompt forensic identification and DNA appraisals as a quality outcome on subsequent quality medicolegal procedures uptake. Through searching the NOK using secured National police networks, that is police signal numbers 7 and 8, and uploading forensic photos in Interpol yellow view notices for population health, to access their unclaimed corpses online at central secured forensic point, in the department of forensic science,

as mitigation to decrease the marked increased improper unceremonious mass grave disposal of unclaimed corpses in public cemeteries, as per local government Act Cap 265 section 201 as instructed by PHOs and resident magistrates in Public Health Act CAP 242 section 35 ~ 42, 144 ~ 148 and in Tissue act CAP 252 and Human Anatomy Act CAP 249 respectively.

The study is being utilized in western parts of Kenya, to assess the effectiveness in the application of quality health system factors to influence quality mortuary and forensic services to population health with purported insufficient and skewed uptakes, to enable any future dignified disposal of previously unclaimed corpses, (Bhullar and Kaur, 2015; Moody *et al.*, 2005). Besides that, the study was also done when we have scanty information on capacity building in skilled professionalization in the core disciplines of forensic sciences such as , forensic fingerprint identification (Appendix XVIII), and tracking of unclaimed persons by NOK using Interpol yellow notices. Forensic pathology, forensic anthropology, forensic odontology, and forensic laboratory medicine. Forensic entomology, forensic radiology, Photography, Molecular biology, and Mortuary science, to manage forensic services in public mortuaries effectively and efficiently under one command unit. Inadequate forensic training, on secured trace evidence, latent print impressions or abstractions, DNA data bank, autopsy dissection, breath alcohol and substance control detectors, digital and multimedia evidence, firearms, and limited exposure to tool marks, toxicology, Forensic biology/ histology, (Silali *et al.*, 2017).

Lastly, the study is being carried at a time when disseminated data on the occupational epidemics, medicolegal procedures, and health laws, attributed to improper mass grave disposal of unclaimed corpses in public cemeteries, progressively on increasing, due

to limited appropriate quality behavioral KAP by most mortuary and forensic service providers and population health, (Chen *et al.*, 2004; De Goyet, 1999; Noji, 2000; Mutethia, 2020).

## **1.4 Study Objectives**

### **1.4.1 Broad Objective**

To determine occupational epidemics, medicolegal procedures, health laws, and health system factors attributed to unceremonious mass grave disposal of unclaimed corpses in western Kenya.

### **1.4.2 Specific Objectives**

- i. To assess on the main propagated occupational health epidemics attributed to congested and overstayed unclaimed corpses in western Kenya.
- ii. To establish the effectiveness uptake of the main medicolegal procedures and health laws associated with unceremonious mass grave disposal of unclaimed corpses in western parts Kenya
- iii. To identify health systems factors, attributed to unceremonious mass grave disposal of unclaimed corpses in western Kenya
- iv. To assess how knowledge, attitude, and practices (KAP) of mortuary and forensic service providers influence unceremonious mass grave disposal of unclaimed corpses in western Kenya.

## **1.5 Research Questions**

- i. What are the main occupational epidemics, attributed to congested and overstayed unclaimed corpses in western Kenya?
- ii. What are the main, medicolegal procedures and health laws attributed to unceremonious mass grave disposal of unclaimed corpses in western Kenya?
- iii. What are available health system factors of mortuary and forensic services, which influence unceremonious mass grave disposal of unclaimed corpses in western Kenya?
- iv. To what extent has KAP on occupational epidemics, medico-legal procedures, and health laws, influenced the unceremonious mass grave disposal of unclaimed corpses in Western Kenya?

## **1.6. Significance of the Study**

The study intends to improve the existing frame works of medicolegal procedures and health system factors, that may influence positive quality behaviors on KAP of mortuary and forensic service providers in Kenya. Towards holistic, comprehensive, and synergistic participation and integration of the entire core of forensic medicine, into one command unit of management, to enable dignified disposal of most previously unclaimed corpses, as per religious and cultural rites in Kenya. Inequalities in infection prevention control of occupational epidemics in western parts of Kenya are still on the increase in public mortuaries. In addition is still influenced by the increased uptake of health laws governing medicolegal procedures, by the public health officers and Resident magistrates to give court orders for justice and accountability. Therefore study looks forward to do critical changes to the current scenario in totality. Using the outcome of the study to carry out frequent health promotion and forensic education,

on the vital roles of the NOK, National police services, and other mortuary and forensic service providers, to influence dignified burials on the unclaimed corpses, to improve and promote sustainable uptake of medico procedures and other health system factors in a holistic, comprehensive and synergistic partnership. Therefore, mediate reliable and accessible finger identifications and DNA appraisal after using the secured networks to access the NOK to facilitate the dignified disposal of previously unclaimed corpses. The health promotion and forensic education also, intend to enlighten the forgotten roles and empowerments of the National police service, to improve their services jurisdictions, as per criminal penal code CAP 63 § 75, National coroner Act 2017, and National Police Act 2011 section 55.

The study intends to give insights into the roles of synergistically integrated management of the available health system factors in Kenya, to maximize their health potentials on propagated occupational epidemics, and increase the uptake of medicolegal procedures, as the main means to reduce the uptake of the health laws. Thus to improve the forensic health care services, and future dignified disposal of previously unclaimed corpses, or proper unceremonious mass grave disposal of unclaimed corpses, that allow easy future exhumation for dignified family burial if the need arises.

The study also looks forward, to establishing the magnitude of unclaimed corpses who lacked the representative of the NOK. Besides the law neglected minor cohorts (fetus and juvenile) unclaimed corpses in the Kenyan constitution, whose status on medicolegal uptake has suffered silence, since the independence. This is a candid infringement of Chapter 4 of the Kenyan constitution on the Human Bill of rights to life, right from conception, as noted with high rate of induced abortion in colleges and

university female students environments, as the most manner of death among the fetus in the study area. Thus the study intends to use the outcome and develop a health policy for the new enactment of the medicolegal procedure for minor cohorts in Kenya hence, decreasing the unceremonious mass grave disposal of unclaimed minor corpses in western parts of Kenya. The study also intends to inform the ministry of Kenya, MOH on the needs for policy amendments, and to initiate, private-public partnerships (PPP) in the construction of ultra-modern DNA plants to foster Finger print identifications and DNA appraisals in Kenya.

## **1.7. Scope and Limitation of the Study**

### **1.7.1 Scope of the study**

The study was carried out only in tiers 3 and 4 which are County governments managed. Levels 5 and 6 which are National government managed public facility mortuaries, operating within western parts of Kenya and have been approved by the Department of forensic sciences to offer medicolegal services. The study strictly looked at how well the 20 public facilities mortuary were prepared on infection prevention control measures of the propagated occupational epidemics, attributed to extended risks exposure when handling bodies in mortuaries with congested and overstayed unclaimed corpses in cold room storage of “cold hit” investigation in span of 90 days. The study also determined the uptake of medicolegal procedures by the national police services, as per criminal penal code CAP 63 and 75, National coroner Act 2017 and National Police Act 2011 section (55) on the inquiry of the unclaimed corpses only using secured networks and Interpol yellow notices to search for NOK for the dead, which were unnatural with the manner of death including (road accident, natural,

suicide, homicide, stillbirth/ fetus, drowning in water, mob justice, abandonment in the bush or public toilets).

The study evaluated the level of capacity building, professionalization, empowerment, and sustainability of mortuary and forensic programs using health system factors, and the influence of behavioral KAP, to influence unceremonious mass grave disposal of unclaimed corpses in public cemeteries.

The mortuary and forensic service providers formed the primary study population. They formerly consented to the study, via surveys and interviews, using observation, KII, and FGDs guides, tools, and instruments for research. The study was only carried out to respondents, who were actively counted in the purpose cluster of mortuary and forensic service and were still on duty in public mortuaries offering mortuary and forensic services attributed to the disposal of unclaimed corpses, in that specific health facility during the specified period of data collection.

Unclaimed corpses were retrospective. Desk review, for the past 5 years and 3 months of data collection, using a Retrospective Desk review form as the secondary study population. Those unclaimed corpses who lack the representative of the NOK were captured as the Target population.

### **1.7.2 Delimitation of Study**

Although, the total number of public health facilities in western Kenya are over 490. Only 20 health facilities, met the inclusion criteria. As, they were accredited and approved, by the department of forensic pathology for cold the storage of unclaimed corpses or missing dead persons, as they wait for the subsequent mortuary and forensic service. Autopsy dissection, was performed only in the witness of NOK of the previously unclaimed corpses, to determine the intermediate cause and nature, of



death, of unclaimed corpses as per birth and death registration, Act CAP 149, to notify the Government. Such corpses were captured as, the study population. Autopsy dissection was also used to provide clinical services and rule out any pit of missed diagnosis, foul play, or management of the patients. Ascertain diagnosis made by previous clinicians. Note that, all previously unclaimed corpses, were witnessed by NOK, hence they were reviewed as target population.

The unclaimed corpses, which had a complete representative of the NOK and good Samaritans, were reclaimed, to enable dignified disposal, as per the specific religious cultural rites, and were reviewed as a study population. Evaluated unclaimed corpses (fetus, juvenile) and adult cohorts acknowledged by national police services and were never witnessed by their NOK, with feature manners of brought in dead, (BID), homicide, and suicides captured as target population.

## CHAPTER TWO

### LITERATURE REVIEW

#### **2.0 Introduction**

This section contains revised literature on shelter lights, on the concepts of occupational, epidemic, or infectious risks, Medicolegal procedures, health laws, health system factors, and how quality behavioural KAP of mortuary and forensic service providers influence unceremonious mass grave disposal of unclaimed corpses, by public mortuaries in western parts of Kenya. Furthermore, the study explored various methods of designs and techniques, results, findings, discussions, conclusions, new science knowledge, and skills, from the study, and recommendations, regarding the essentials of dignified disposal or proper unceremonious mass grave disposal of unclaimed corpses, caused by Bubonic plaques, (Walløe, 2008; Iiyasu *et al.*, 2016). That should be prepared, as per the Public Health Act CAP 242 section 146 to improve population health live hoods in mortuary, forensic services and general healthcare.

#### **2.1.1 Prevalence of Occupational Epidemics in Public Mortuaries Attributed to Delayed Uptake of Mortuary and Forensic Services on Unclaimed Corpses**

Occupational epidemics are conditions or objects, that may cause risks to mortuary and forensic service providers (Okoth-Okelloh *et al.*, 2015), while working in congested and overstayed unclaimed corpses in public mortuaries, after the span of 90 days on cold storage of “cold hit” investigation terminates. Occupational Safety and Health Administration (OSHA), (Okoth-Okelloh *et al.*, 2015), is the government organization, in charge of keeping workers safe, and was created in 1970 by the Congress with mission to ensure “safe and healthful working conditions for mortuary / forensic service providers, work by the OSHA settings, and enforcing the specific

standards, WHO, (2017). Through capacity building on infection prevention control mitigation, community outreach, education, research, and health promotions, to decrease occupational epidemics in public mortuaries, (Pham *et al.*, 2020. Macharia *et al.*, 2021; Okoth-Okelloh *et al.*, 2015).

Chemical Hazards, consist of chemical substances used in mortuary facilities, such as carbon monoxide, carbon dioxide, nitrogen dioxide, sulphur dioxide, hydrocarbons, sulphuric acid, tannic acid acetic acid, turmeric acid, ozone, limes, alkalies, which may cause injury to mortuary and forensic service providers when used in arterial fluids for embalment, Marangu, (2020). When they are absorbed through the skin and inhaled or ingested, when handling unclaimed corpses or embalment reagents, (Abdulraheem *et al.*, 2012;, Ahmed, 2011), without using non pharmaceutical interventions, (NPIs), (Koh &Jeyaratnam, 2001). Mortuary and forensic service providers may suffer from respiratory diseases, skin diseases, allergies, heart diseases, cancer, and neurological disorders, (Clarkson *et al.*, 2012; Marangu, 2020). These diseases may be acute or chronic, as determined by the prevailing, signs, and symptoms. Frequently, diseases may be difficult to diagnose, because of their signs and symptoms, may appear after a long dormant period, or may not be apparent at all. These diseases often shorten mortuary employee s life expectancy, (Clarkson *et al.*, 2012; Schachner& Hansen, 2011;Mara & Evans, 2018).

Biological Hazards in mortuary facilities influence the manifestation of infectious diseases, caused by bacteria, fungi, viruses, insects, dietary deficiencies, excessive drinking, allergies, brain fever, imbalances, tetanus, stresses, and strains on mortuary and forensic service providers, (Olu, 2017;Schachner& Hansen, 201;Cocco, 2002;Verani *et al.*, 2010). Environmental Hazards, may originate from mortuary

premises, and take account of noise pollution from the NOK, vibration and death shocks, illumination, radiation, heat, ventilation, air, and water pollution, these hazards cause redness of eyes, genetic disorders, cancer, sterility, hearing loss, nerve injury to mortuary and forensic service providers, (Koh&Jeyaratnam, 2001; Marangu, 2020; Mara & Evans, 2018).

Psychological Hazards are attributed to mortuary and forensic service providers' job stress, caused by various stressors, such as task and role demands, mortuary organizational leadership, lack of group cohesion, intergroup and interpersonal conflicts, and life and career changes, Pham *et al.*, (2020). This may lead to emotional disturbances, (Montañez-Hernández *et al.*, 2020), which in turn, leads to fatigue and exhaustion, (Hauptmann *et al.*, 2009). All these affect the normal health of both mortuary and forensic service providers and the Population's health. Apart from occupational hazards, there are some occupational diseases, that impair the health of mortuary and forensic service providers, that need to be established in western parts of Kenya, because of the unclear records upkeep, (Koh &Jeyaratnam, 2001).

Ergonomic Hazards, cause or put strain on your body of mortuary or forensic service providers, over a period. You may just feel sore or cramped in the short term, but repeatedly sitting or standing in difficult positions, or completing the same movements repeatedly, across a long period. Ergonomic Hazards attributed to mortuary and forensic services can lead to long-term injury and illness, (Verani *et al.*, 2010; Watkins *et al.*, 2006). Physical hazards in mortuary premises, attributed to infrastructural social amenities, located in facility mortuary settings that can harm your body without you touching it, like exposure to radiation. Prolonged exposure to sunlight, extreme high or low temperatures and loud noise in the facility mortuaries. Work organization

hazards are mainly the workplace violence and staff discrimination, deficiency of respect, sexual aggravation, and other conditions, which are hazardous to mental, emotional, and physical health among the health population, (Cocco, 2002) Koh & Jeyaratnam, 2001). However, the study on how propagated occupational epidemics, are associated with congestion and overcrowded unclaimed corpses, remains undocumented in the western part of Kenya.

### **2.1.2 Impacts of Mortuary and Forensic service Providers Exposures to**

#### **Congested and Overstayed Unclaimed Corpses in Public Mortuaries**

Globally, significant numbers of unclaimed corpses, admitted in public mortuaries, are mass graves disposed of, (Saul, 2013), earlier than the expiry period of 90 days of cold storage of “cold hit” investigations, as prescribed medicolegal standard frame works. Health laws are used to improve hygiene and sanitation measures of the population's health, (M. Silali, 2021;Illes and Wilson, 2020). Failure of the national police service to uptake quality medico-legal framework works, as per the national police service act 2011, coroner act 2020, and Kenya criminal penal code CAP 63 and 75, which outlines the power of police services to take photographs, fingerprints, and secure concealed forensic evidence, up to criminal trials of the unclaimed corpses at autopsy dissections. Have instigated into their accumulative congestion, decomposition and overcrowding, (Watkins *et al.*, (2006), thus increasing unceremonious mass grave disposal of unclaimed corpses by public mortuaries. Similarly, the increased propagated, occupational epidemic of contagious infections to mortuary and forensic service providers (De Goyet, 1999;Sodhi *et al.*, 2013). Therefore, the Resident magistrates and public health officers, apply health laws governing medico-legal procedures, as a primary prevention measure for the health

population, as per the public health act CAP 242, sections 35-42, 144-148, on quarantine, isolation, mass disposal and exhumation in cemeteries, as per local government Act, CAP 265 section 201. Human Anatomy Act Cap 249, mediate consents on human remains to enable justice and accountability, through the issue of affidavits, and court orders (Hess *et al.*, 2014;Mutethia, 2020), to effect improper unceremonious mass grave disposal in public cemeteries, (Pankaj and Singh, 2017). The epidemiology of unclaimed corpses and its attributed occupational epidemics, medico-legal procedures, and health laws, have not been studied by innumerable forensic epidemiologists, in synergistic participation, to decrease improper unceremonious mass grave disposal of unclaimed corpses, (Chen *et al.*, 2004;Percy, 2005;Kassie *et al.*, 2018).

Furthermore, no study has considered the pitfalls of propagated occupational epidemics affecting mortuary and forensic service providers. In addition, inadequate capacity building in forensic sciences, among mortuary and forensic service providers, as the core challenge in decreasing unceremonious mass grave disposal of unclaimed corpses in public cemeteries. Therefore, also hinders the quality application of infection prevention control mitigations, (Bedoya *et al.*, 2017; Hauptmann *et al.*, 2009; Sodhi *et al.*, 2013).

In the study area, once the police services, open inquest files for autopsy and acknowledges, the unclaimed corpses in the public mortuary, the rest of the work is preserved to NOK, whom most of them are never aware if their persons are demised. The facilities wait for the expiry of three months, ( 90 days) of “cold hit” investigations, to apply health laws governing medico-legal procedures, as per health law Act CAP 242, Mutethia, (2020).

Deprived mortuary health hygiene and sanitation, have been widely attributed to an increased occupational health epidemic, (Okoth-Okelloh *et al.*, 2015), and epidemic risks exposures attributed to a variety of mortuary and forensic service providers, exposure to overstayed and congested unclaimed corpses lying on the floor of the public mortuaries (Risinger *et al.*, 2002). Inadequate professionalization of mortuary and forensic service providers, in the ministry of health, to offer quality forensic services endure high challenges, since its independence. And remains a persisted challenge daily in life, (Watkins *et al.*, 2006; Silali, 2017; Saul, 2013).

Propagated occupational epidemics, attributed to perennial difficulties, (De Goyet, 1999), in the uptake of quality and sustainable infection prevention control measures. While working in public mortuary facilities, (Olu, 2017, Paripurna *et al.*, 2018), and have been also attributed to the constant failure of National police service to implement quality medicolegal procedures promptly, as per the national police service Act 2011 section 55. Therefore, the study seeks to mainstream National police service roles. In synergistic participation with other mortuary and forensic service providers, with equitable knowledge, attitude, and practices, as per Penal code CAP 63 § 75 and the national police service Act, 2011. Through, forensic science capacity building, in the core discipline of forensic medicine. To enhance health promotions on forensic education on quality health care, (Sodhi *et al.*, 2013).

Most epidemiologic studies demonstrate that lesser congestions and lack of overstayed unclaimed corpses, are safer health grounds, for working in mortuary and forensic environments, with greater prevailing, primary prevention, against communicable diseases, (Pham *et al.*, 2020; Agha, 2012). However, in the western parts of Kenya, public health mitigations, on the devastating state of mortuary hygiene and sanitation,

remains unclear and undocumented, as recognized during, the expert observational baseline survey, and need assessments.

The main purpose of infection prevention control, is to decline the manifestation and transmission of infectious diseases from unclaimed corpses exposures, through embalment, (Pham *et al.*, 2020; Abdulraheem *et al.*, 2012), as, a standard hygiene, and sanitation mitigation to health population, (Beck, 1966; Amoran and Onwube, 2013). Specialized training in core disciplines of forensic and mortuary science remains a key pillar of integration in single command management of the department of forensic sciences, (Abdulraheem *et al.*, 2012; Saul, 2013). Capacity building, advocates for quality empowerment, and mediates sustainability for a safe working environment, with minimal health risks and occupational hazards.

However, limited studies have been done in western parts of Kenya explored, on main causes of inadequate recruiting of professional human resources. As the core health system factors to improve dignified disposal of previously unclaimed corpses. Moreover, decrease chances of propagated occupational epidemics are attributed to increased improper, mass grave disposal of unclaimed corpses of both law-neglected minor cohorts and adults unclaimed corpses as per Public Act CAP 242 section 144 ~ 148.

## **2.2 Basic Infectious Epidemics Attributed to Exposure to Unclaimed Corpses, in “Cold Hit” Investigations**

Unclaimed corpses admitted in public mortuaries, by National police services, as per criminal penal code, CAP 63 and 75, National Coroner Act, 2017, and National police service Act 2011 section 55. Emphasis on the need of the national police services, to upload photos of unclaimed corpses into Interpol yellow notices. Do forensic finger



print abstractions, and search for the NOK promptly to enable dignified disposal of previously unclaimed corpses, in Kenya and study region, as per religious or community cultural rites, (Castro & Coyle, 2013;Beavan, 2001;Shako & Kalsi, 2019;Paripurna *et al.*, 2018; Bhullar & Kaur, 2015). The unclaimed corpses admitted in public mortuaries, usually have a variety of associated manners of death, primarily for the the law-neglected minor cohorts, (fetuses attributed with induced abortions, abandonments inpublic toilets or bushes. Juvenile, mostly bears murder, and then abandonment in public forests to conceal the evidence from the offenders). While adult cohorts with manners of BID, shooting, suicide, homicide, drowning in large water bodies, and strangulations, (Paripurna *et al.*, 2018; Olu, 2017); Illes& Wilson, 2020; Bhullar & Kaur, 2015, Silali *et al*, 2023)). The basic propagated biological infectious deceased objects contain, attributed epidemics to exposures, by mortuary and forensic service providers, like the population health exposed during visiting the public mortuaries, include, Hepatitis A, B and C, cholera, tuberculosis, HIV, meningitis and skin infections, (*Okoth-Okelloh et al.*, 2015;WHO, 2017). Leukemia is also associated with, long-term exposure to formaldehyde, (Ahmed, 2011 ; Montañez-Hernández *et al.*, 2020,Silali *et al*, 2023).

Hepatitis B, an antigen that causes hepatitis B virus (HBV), is known to affect over 257 million people globally, regionally, and locally, through conduct with infected blood or other body fluids during embalmment or cross infections of the mortuary social infrastructures and amenities, (Apima&Kandiri, 2019;Verani *et al.*, 2010). In 2018, HBV infection give rise to 88,700 deaths among, health service providers,WHO, (2017). However, HBV morbidity and mortality, among the mortuary service providers in western parts of Kenya, persist undiscovered and are unclear. Though

most studies have associated, mortuary infectious diseases with propagated diseases in mortuary and forensic service providers, since their mortality data, continue to appear insignificant in prevalence (De Goyet, 1999; Noji, 2000 ;Brenner, 2014;WHO, 2005). Tuberculosis is an airborne infectious bacterial disease, which affects millions of health service providers globally and regionally. The figure also gathers for mortuary and forensic service providers, (Brenner, 2014;WHO, 2005). In 2017, 10 million people were infected with tuberculosis, and 1.6 million people died from TB globally and regionally, (Agha, 2012; WHO 2017). However, the western parts of Kenya, demonstrate that the morbidities and mortalities, attributed to occupational infectious of TB, have not been established in full yet, and remain undocumented for public scrutiny. Though, few cases have been reported by departments of disease surveillance about unceremonious mass grave disposal of fresh unclaimed corpses, in other parts of the world, (WHO 2017;Agha, 2012;Verani *et al.*, 2010).

TB infection incidence is at about 2% per year, (Correia *et al.*, 2014), which may be accelerated to 4-5 % annually. Due to the emergence of the current Multidrug-Resistant TB hazards, (Koh & Jeyaratnam, 2001;Agha, 2012). Control of TB complication, by its manner of transmission. Difficulty in administering long-course chemotherapy regimens and subsequent appearance of multi-drug resistant strains, (Verani *et al.*, 2010; Agha, 2012). A study by (Shako and Kalsi, 2019), establish that tuberculosis is highly risk attack among the majorityof mortuary and forensic service providers, and is on the increase specifically from poorly embalmed unclaimed corpses, (Bajracharya & Magar, 2006; Watkins *et al.*, 2006). Unclaimed corpses may also contain other infectious pathogens, such as Neisseria Meningitides, and meningitis, potentially infectious, to mortuary and forensic service providers, (Verani

*et al.*, 2010; Kassie *et al.*, 2018). Although most pathogens do not survive at very low temperatures, *Neisseria meningitidis* has been found to survive for over 72 hours on a metal surface, (Bedoya *et al.*, 2017; Fusco *et al.*, 2016).

Fungal infections are skin contagious diseases spread by skin contacts or wind from uncovered unclaimed corpses lying on floors, due to inadequate storage spaces in cold storage. *Tinea pedis* causes peeling redness, itching, burning, and blisters or sores. Ring worms (*tinea corporis*), (Sodhi *et al.*, 2013; Koh & Jeyaratnam, 2001; Murrell, 2011), Spread by skin contact. Hence, potentially infective, from the infected unclaimed bodies, dead clothes, or furniture to mortuary /forensic service providers, (Nantulya and Reich, 2002). Blood-soiled HIV and formalin maceration, (Ahmed, 2011), of hands or morticians and cholera, remain potential sources of infection to mortuary and forensic service providers, that never utilize, non-pharmaceutical interventions. When handling unclaimed corpses, during the forensic examination or fingerprint abstraction procedures, (Castro and Coyle, 2013 ; Mara and Evans, 2018). However, the current documentation on propagated occupational epidemics, attributed to gross infections or exposure of unclaimed corpses in western parts of Kenya remains unclear, insufficient, and undocumented about improper unceremonious mass grave disposal in public cemeteries, as per local government Act CAP 265 section 201.

### **2.3 MedicoLegal Procedures and Health Laws Attributed to Unceremonious Mass Grave Disposal of Unclaimed Corpses by Public Mortuaries**

Quality medicolegal uptake demands that, the National police services promptly describe the diagnostic triangle, secure the scene with crime tapes, and take forensic photographs, attributed to the corpse and the physical crime scenes. Then write statements, from primary witnesses, to determine the manner of death, as per Criminal

penal code CAP 63 § 75 and the National police service Act 2011 section, (55), Mutethia, (2020). Open autopsy files, admit unclaimed corpses in the public mortuary, and initiate forensic investigations by doing fingerprint abstractions, as per the national coroner Act, 2017 and national police Act 2011 section 55. Search NOK, using the secured networks & upload photos of the deceased, and Interpol yellow view notices. (Paripurna *et al.*, 2018; Abiodun & Abioro, 2014). Accessed valid NOK enable, DNA appraisals & physical identification using birthmarks, as per CAP 63 and 75 of the criminal penal code and Coroner Act, 2017, of the Kenyan constitution, (Mutethia, 2020, Published by the National Council for Law Reporting & with the Authority of the Attorney-General, 2012).

After forensic identifications and DNA validations. The NOK, of previously unclaimed corpses, may take vows before resident magistrates, to mediate consents for justice & accountability of human remains, and evade autopsy dissections, if it is contrary to their religious and cultural rites, like the Islamic religion. Customarily autopsy dissection, is carried out on previously unclaimed corpses, to notify the government, on the intermediate cause and nature of death, as per the birth and registration Act, CAP 149 on the vital statistics of Kenya.

Medicolegal procedures, attributed to improved, unceremonious mass grave disposal of unclaimed corpses, by public mortuaries, require a synergistic partnership of the national police services with other mortuary and forensic service providers, (Percy, 2005; Silali, 2017; Shako & Kalsi, 2019). The partnership of mortuary and forensic service providers, necessity accessibility and search of the NOK promptly, and identify unclaimed corpses, (Silali *et al.*, 2023). Through the utilization of secure networks of 1-24/7, police signal 7, 8 and upload of photos of unclaimed corpses on Interpol yellow

view notices, to enable NOK to secure forensic identification of fingerprint abstractions, as the key mainstays, to mediate previously unclaimed corpses to be disposed of in a dignified manner, as per religious and cultural rites. (Hess *et al.*, 2014; Abiodun & Abioro, 2014; Pham *et al.*, 2020; Mutethia, 2020). In addition, the above procedures are in line with the National Coroner Act, 2017, and the National police service Act, 2011, section 55 of Kenya.

Fingerprint and DNA appraisals, form a benchmark for forensic identification of previously unclaimed corpses, to allow dignified disposal by the NOK through the performance of religious and cultural rites, Pham *et al.*, (2020). Forensic identification, contains three steps specifically, enrollment, searching and verification. Enrollment is capturing fingerprint images using a sensor, (Shako & Kalsi, 2019; Kevles, 1995). Verification is corresponding fingerprints for correlation studies in minutiae-based matching or ridge minutiae-based algorithms, (Moody *et al.*, 2005; Ashbaugh, 1999 ; Komarinski, 2005). Fingerprint records; contain impressions from pads on the last joint of fingers and thumbs. Human fingerprints are detailed, nearly in a unique manner, even identical twins never look identical fingerprints, (Kassie *et al.*, 2018; Jeffreys *et al.*, 1985). Difficult to alter Fingerprints, are durable, over the life of an individual, (Grant, 2018), making them suitable, as long-term transcription markers of human identity and source of medicolegal procedures, are well preserved in for cold storage during “cold hit” investigation, (Cole, 2004; Silali *et al.*, 2017 and 2023). Latent prints are used by crime police to identify individuals who wished to conceal identity, thus accessible to identify unclaimed corpses, in the aftermath of a natural disaster or crime, (Hess *et al.*, 2014; Risinger *et al.*, 2002).

However, no studies have been done comprehensively in western parts of Kenya, to demonstrate how latent fingerprint abstracts used to extract the National police good conduct, can also be used similarly in forensic Identification of unclaimed corpses, to conduct NOK to come for DNA appraisal, thus, decrease unceremonious mass grave disposal by the public mortuaries.

The failure of police services to implement quality, medicolegal procedures, automatically, advocates for the Resident magistrates and PHOs, to apply, the Health laws that govern the medicolegal procedures, to sustain primary prevention than cure to the health population. Health laws are implemented in the aftermath of inadequate and tilted uptake of medico-legal procedures after the 90 days of cold room storage of the “cold hit” investigations. The main health laws utilized by PHOs to approve unceremonious mass grave disposal of unclaimed corpses are Public Health Act Cap 242, sections 35-42. Provides reports and control of epidemics by quarantine and isolation. Isolation clauses, allow mortuary service providers to isolate unclaimed bodies from clinical dead cases. Sections 144 -148, provides procedures for the exhumation and disposal of unclaimed bodies from public mortuaries, to improve the health hygiene, and sanitation of the population health. Local Government Act, Cap 265, section 201, allows the local authority to regulate and formulate bylaws on mass grave disposal of unclaimed bodies, (Silali, 2017; Mutethia, 2020). Health Act, 2017 section 80, allows one to consent to which pathologist performs an autopsy, to ascertain the cause and nature of death, as per National Coroner Act, 2017, CAP 149 of the Births and death registration Act, ( Silali *et al.*, 2017; Mutethia, 2020). The Proper unceremonious mass grave disposal, opined by this study: requires shallow excavation, earmarked mass graveyards, less than 6 feet, unclaimed corpses tagged with aluminum

metal labels on appendages, aligned on ground, per year of mortuary serial registered number/ sampling frame to enable future exhumation, Public health Act CAP 242, section 146.

However, the application of medicolegal procedures, and health laws in western parts of Kenya, remains unclear and undocumented, about the criminal penal codes, CAP 63 and 75, National Coroner Act, 2017, and National police services Act, 2011 section (55).

### **2.3.1 Trends Uptake of Medico-Legal Procedures and Health Laws Attributed to Increased Unceremonious Mass Grave Disposal of Unclaimed Corpses**

Quality uptake of medicolegal procedures by the national police services is inversely proportional to the application of health laws, such as Primary Health prevention measures, by PHOs and Resident magistrates, to sustain a healthy population and healthy society, WHO, (2017). Prompt, application forensic Identifications, (Beavan, 2001; Castro & Coyle, 2013). Through fingerprint abstractions and DNA appraisal, and the use of the Interpol yellow view notices enable NOK, to search and track their unclaimed corpses in forensic medicine. Thus, decreased unceremonious mass grave disposal, and enhances dignified disposal of previously unclaimed corpses, as per specific religious and cultural rites, (Pham *et al.*, 2020; Marangu, 2020; Abiodun & Abioro, 2014). Let down of the national police services to implement quality medicolegal procedures, has habitually caused PHOs and resident magistrates, to apply Health laws governing medicolegal frameworks. By providing both affidavits and court orders, as valid consents of human remains for justice and accountability, as per Human Anatomy act CAP 249. Therefore the noted increased improper unceremonious mass grave disposal of unclaimed corpses, being witness in the society today which is

not in line with Public health Act CAP 242, section 146, (Mutethia, 2020;M. B. Silali, 2017). Similar,the improper unceremonious mass grave disposal, being implemented, by public mortuaries, using court orders and affidavits, is against Chapter 4 of the Kenya constitution on Bill of rights to life , right from conception, (Greasley &Kaczor, 2018).

Inadequateand tilted uptake of medicolegal procedures. May be attributed to inadequate access to a reliable integrated forensic science department, to provide forensic services,in a single command management, (Pham *et al.*, 2020, Silali *et al*, 2023)). For easy allocation and accessibilityof human resources and financial capitalto accomplish latent print identification ,the search of NOK to provide DNA appraisals, by utilization of the secured networks of 1-24/7, police signal 7, 8, and photos uploaded to Interpol yellow view notices, (Abiodun&Abioro, 2014;Silali *et al*, 2017). However, Kenya like the study area have a broad deficiency ofjuvenile and adult forensic Database, CODIS, linked between national and county counties, to enable National police services to track and trace, unclaimed corpses forensic fingerprint abstraction copies, or DNA appraisals promptly. Like the broad deficiency of Interpol view notices uploaded, to the internet for NOK and the population health, to access their unclaimed corpses, hence decreasing improper unceremonious mass grave disposal of unclaimed corpses.

### **2.3.2 Roles of Secured Network 1-24/7 Police Service Signal 7, 8 and Interpol Yellow Views Notices to Search for NOK and DNA Appraisals**

National police services, forms the chief mediators on quality enactment of medicolegal procedures, basically via uploading of photos of unclaimed corpses or missing juvenile cohorts, in secured networks and online digital platforms, called



Interpol Yellow view notices, as key mortuary and forensic health system factors that influence the accessible of mortuary and forensic services to the respective NOK, (Abiodun & Abioro, 2014). The operations of secured networks from an integrated department of forensic science enable both population health and NOK to search and identify their deceased or missing juvenile unclaimed corpses from reliable accessible forensic sources located at the nearest public mortuary premises. Failure of the National police services, to implement standard medico-legal frameworks, has amounted to both resident magistrates and PHOs to approving, improper unceremonious mass grave disposal of, most unclaimed corpses into more than 6 feet deep excavated graveyards, without clear earmarks for future exhumation. Besides inadequate accessibility of aluminum tags labels on the appendages. But just strapping the frontal head “unknown, Date of death (Abiodun & Abioro, 2014).

Utilization of 1-24/7, secured networks, signal 7, 8 and Interpol yellow view notices, to enable accessible search of NOK, forensic identification, and DNA appraisals, as per CAP 63 and 75 of the penal code of Kenya. Police service, provide secured admissible evidence right from the diagnostic triangle, they note clearly, when and how the dead, is positioned at the scene and secure data, from the primary witness, (Hess et al., 2014 ;Silali, 2017). Unauthorized persons are never allowed to step near the diagnostic triangle. Since they may contaminate the hidden evidence, Risinger *et al.*, (2002). Hence, the crime scene is often secured with crime tapes, (Hess *et al.*, 2014). Detective police services, and forensic scientists at the crime scenes, prepare selective photographs, to enable the construction of admissible evidence, with the help of a primary witnesses, (Apima and Kandiri, 2019).

Similarly, selfie photographs of surface anatomy: Tattoo, Birthmark, other deformities or crucial features, (Risinger *et al.*, 2002), which can help in forensic identification by NOK and family members, are uploaded, to Interpol yellow view notices internet, for population health to access readily. At the diagnostic triangle, the entire dead body is examined, searched, and searched to write valid inquest files, as per Criminal penal code Cap 63 and 75 and Coroner Act 2017 section 24-25, (Beavan, 2001; Silali *et al.*, 2017). The majority of unclaimed corpses are attributed to various manners of death, such as traffic road accidents injuries, murder, suicide, abandonments in public bushes or forests, shooting, and being brought in dead. Mortality of manners of death, are maintained in detailed custody data, (Greasley & Kaczor, 2018; Abbas *et al.*, 2011 ; Khayesi and Nafukho, 2016). Clothes on “cold hit” investigation searched to uncover and recover valuable items, such as national identity cards. Mobile phones or diary to assist in the forensic search, and tracing of family or the NOK, (Jeffreys *et al.*, 1985 ; Cole, 2004).

However, the above-mentioned roles and essentials of the secured network 1-24/7 police service signal 7, 8 and Interpol yellow views notices to search for NOK and DNA appraisals, to decrease improper, unceremonious mass grave disposal of unclaimed corpses, in western parts of Kenya remain unclear and undocumented.

### **2.3.3 Roles of the Primary Witness at Diagnostics Triangle to Establish Manner of Death**

The diagnostic triangle consists of the prime witness, the dead, and the crime scene (Abiodun & Abioro, 2014; M. B. Silali, 2017). Positioning of the dead at the crime scene after death. Carry’s forensic information, which may help mortuary and forensic service providers to establish, the manner of death that affected the deceased and

nature of death encountered. as per the criminal penal code of Kenya CAP 63 and 75 and national police service Act, 2011 section (55) and Coroner Act 2017, Published by the National Council for Law Reporting & with the Authority of the Attorney-General, ( 2012). Primary witness, describe candid physical pictures of the position, site, and scene of the dead. They provides forensic photos and secure forensic sealed evidence of that point in time, for other core forensic service providers, to fast-track conclusions of the case in a criminal trial. Before the NOK, family members or government authorities sought for justice, (Abiodun & Abioro, 2014; Reedy, 2020; Pham *et al.*, 2020). Other forensic pieces of evidence found at the crime scene include demographic characteristics, about surface anatomy. like, age, color, gender, height, birthmarks or injury marks, tattoos, racial features, cut/ burn marks, broken teeth, hair dyed, natural, clothing, type of footwear, watch, glasses, jewelry (Hearing aids,), key, purse, wallet, ticket, mobile, bank card, driving license, passport, collected from of unclaimed corpses, (Castro & Coyle, 2013; WHO, 2005; Jeffrey *et al.*, 1985).

However, failure of the national police services to report promptly at diagnostic triangle to secure the crime scenes, with the crime tapes, have caused the accumulated contamination of required sealed evidences and statements from the prime witness and suspects, to establish the correct manner of death, affecting the unclaimed corpses before enabling the subsequent autopsy procedures, (Fusco *et al.*, 2016; Shako & Kalsi, 2019).

Nevertheless, the candid information on evaluation of the diagnostic triangle, to determine manner of death among unclaimed corpses in western parts of Kenya, remain unestablished for scholarly research and publication.

## **2.4 Health Systems Factors Attributed to Unceremonious Mass Grave**

### **Disposal of Unclaimed Corpses by Public Mortuaries**

The basic health principles of infection prevention control practices, against propagated occupational epidemics, due to the exposure to unclaimed corpses from public mortuaries, (Okoth-Okelloh *et al.*, 2015), remain, arterial embalmment, as a key health system factor, to prompt disinfection, prevention of the mortuary propagated disease epidemics, (De Goyet, 1999), and promotes health hygiene of the congested and overstayed unclaimed corpses. Some lying on the floors, due to inadequate spaces for cold storage of “cold hit” of investigation. However, in forensic science, arterial embalmment of unclaimed corpses, are attributed to interfering with admissible evidence of medicolegal procedures, before trials of the dead at autopsy dissections, (Cole, 2004; Illes and Wilson, 2020) ; Fusco *et al.*, 2016; Pham *et al.*, 2020).

Elementary ingredients of embalmment procedure, contains following components: fixative, preservative, humefectan, buffer, anticoagulants and vehicle/ water, which advocate for holistic and comprehensive hygiene and sanitation, (Ahmed, 2011; Bajracharya & Magar, 2006; Silali, 2021). Infections prevention control measures, in public mortuaries tailored towards, accessible uptake of modern arterial embalming methods and utilization of freshly prepared arterial fluids. (Bajracharya & Magar, 2006; Beck, 1966; Correia *et al.*, 2014). Which are critical for a well-functioning of any public mortuaries, to influence quality forensic health care delivery, on previously unclaimed corpses going for dignified disposal, as religious or cultural rites of the specific community, Watkins *et al.*, (2006). Thus decrease the improper unceremonious

mass grave disposal in public cemeteries, as per the local government local Act, CAP 265 section 201.

WHO in 1948, defined Health, as the state of complete physical, mental, social, emotional, spiritual, and environmental well-being. In addition, not merely, the absence of diseases or infirmity. In 2011, WHO, defined infection prevention control, as a measure to mediate, the holistic and comprehensive health care against, the vulnerable groups, such as mortuary and forensic service providers, ( Nyaberi *et al.*, 2014 ;Watkins *et al.*, 2006). Quality of health system factors involves functions of management of public mortuaries, through synergistic participation, with public private partnership (PPP). Health system factors necessitates, habitual capacity building of all mortuary and forensic service providers in core disciplines of forensic medicine, (Kazungu *et al.*, 2015 ; Advisory committee 2003). Which includes forensic fingerprint identification, forensic pathology, forensic anthropology, and Forensic odontology. Forensic laboratory medicine, Forensic entomology, forensic radiology, Photography, Molecular biology and Mortuary science, to enable accessible forensic services in national and county governments. Forensic capacity building, influence empowerment, and sustainability of quality uptake of medico legal laws, health laws, medical ethics, and KAP to effect, appropriate technology within the positive effect, of forensic services, to improve forensic service at less cost , effective and efficient, (Chen *et al.*, 2004 ;Fusco *et al.*, 2016 ; Franco *et al.*, 2002). Synergistic partnership of core disciplines of forensic science to work, as a department of forensic science is key health system factor that enable, effective and efficiency single command management of all core discipline of forensic medicine to influence gradual decrease of improper unceremonious mass grave disposal of unclaimed corpses by public mortuaries.

However, in western parts of Kenya, the uptake of above health system factors as key forensic variables to decrease improper unceremonious mass grave disposal of unclaimed corpses and sustain dignified disposal by NOK, remain unclear and undocumented.

#### **2.4.1 Forensic Capacity Building, Recruitment and Staffing of Mortuary and Forensic Service Providers**

Quality recruitment and staffing of forensic personnel, in public mortuaries forms bench marks of initial dignified disposal of previously unclaimed corpses, from public mortuaries to be handed over death notification to NOK, as per CAP 149 of death and birth registration Act, (Mutethia, 2020). Similar, it influences holistic and comprehensive management of the core discipline of forensics, into single command management, through accessible and reliable synergistic integrations on the core components of forensic sciences more easily, such as Forensic fingerprint identification, forensic pathology, forensic anthropology, forensic odontology, forensic laboratory medicine, and forensic entomology. Forensic radiology, Photography, Molecular biology and Mortuary science, (Percy, 2005; Chen *et al.*, 2004).

Quality human resource recruitment, such as mortuary and forensic service providers, is spirited for the success of all forensic service provision in public mortuaries. It allows personnel with specific knowledge, skills, and appropriate technology, to offer the specific forensic service specialized in before. Background of medical laboratory science is significant for sustainability of forensic services. Specifically with experiences in histopathology and mortuary science, Human anatomy, embalming techniques, restorative art, (Montañez-Hernández *et al.*, 2020; Saul, 2013). The United

States has over 25,470 mortuary and forensic service providers of which 3,710 are embalmers. While morticians are over 36,000, (Chen *et al.*, 2004).

However, in western parts of Kenya, the data on forensic capacity building, recruitment and staffing of mortuary and forensic service providers remain unclear and undocumented.

#### **2.4.2 Capacity Building in Mortuary and Forensic Sciences Empowerments**

Forensic medicine, involves recruiting human resources, with achieved capacity building (knowledge and appropriate skills), in specific core discipline of forensic science. For instance forensic fingerprint identification and tracking of unclaimed corpses for the NOK to come promptly for DNA appraisals, (Illes & Wilson, 2020). Forensic pathology, forensic anthropology, forensic odontology, and forensic laboratory medicine. Forensic entomology, forensic radiology, photography, molecular biology and Mortuary science, that form integrated purposive cluster mortuary / forensic service providers. Forensic integrated capacity building, provides basic knowledge and skills in public health, forensic sciences, health laws, tissue and anatomy acts, detective crime science and mortuary science, (Nantulya and Muli-Musiime, 2001). Capacity building in Mortuary and forensic science, mediate human resource with proper knowledge and skills, empower them to influence sustainability of mortuary and forensic services in public mortuaries, (Rowe *et al.*, 2005). Thus, positive outcome of quality medico legal procedures effects, also influence positive quality infection prevention control, when expose to, occupational health epidemics, (Watkins *et al.*, 2006), and reconstruction of candid crime scene at the diagnostic triangle, besides providing secured admissible evidence, (Bajracharya and Magar, 2006; Silali *et al.*, 2017). Mortuary and forensic service providers training, enhance

the utilization of medico legal procedures, to enable dignified family disposal, (Franco *et al.*, 2002 ; Agha, 2012). Moreover, decrease unceremonious mass grave disposal of unclaimed corpses by public mortuaries.

However, there are no valid records in western parts of Kenya to establish how well mortuary and forensic science have been empowerments to sustain the current and future quality medico legal procedures and health laws provision to promote future healthcare.

### **2.4.3. Accessibility to Interpol Yellow notices, Equipment and Potency**

#### **Reagents as Basic Health System Factors**

Essential mortuary Interpol yellow notices, forensic equipment and reagents supplies in public mortuaries, influence quality infection prevention control practices, in mortuary and forensic management on the previously unclaimed corpses, before released to NOK to enable dignified disposal. Interpol yellow notices, Health hygiene and sanitations encourage population health, to have, normal disposal of previously unclaimed corpses by burial or cremation, after completion of autopsy to notify the government on the cause and nature of death, as per birth and death registration Act CAP 149,(Mutethia, 2020; Pankaj and Singh, 2017; Sodhi *et al.*, 2013). Common equipment and reagents, supplies in mortuaries are Cold rooms, Stainless steel postmortem tables or heavy-duty tables covered with plastic sheets, (Brenner, 2014). Wheeled trolleys and coverlid, for transporting unclaimed corpses. Mortuary hydraulic lift or small fork. Trestle tables, and chairs for administrative offices. Wall charts to record progress. Large poster boards, where advertisement, are made in 21 days' to notify the population health on the unclaimed bodies to be improperly, unceremoniously mass graved, by the public mortuaries, before disposal is executed,



(Appendix XX), ( Silali *et al.*, 2017), Heavy-gauge black plastic sheets. Dustbins and assorted liner bags, routine cleaning materials and disinfectants, are key for effective infection prevention control in public mortuaries. Office equipment and aluminum name tags, and Body bags or polythene tube gauge 1000, are also essential of mortuary and forensic services, (Brenner, 2014 ;Bedoya *et al.*, 2017).

Mortuary cold storage for “cold hit” investigation, form the bench map of health system factors. Since they influence both medico legal and normal inpatient clinical death, by inhibiting autopsy changes, at temperatures below 4C<sup>o</sup>, (Silali, 2021 ;Brenner, 2014)). Despite, above stated essential Interpol yellow notices networked services, equipment essential reagents noted for its great support in forensic services and sustainability of hygiene and sanitation standards in public mortuaries. Its information on accessibility and serviceability and power pack up and embalmmnt replenishment, like the theatre sections in the facilities, remains undocumented and unclear in western Kenya.

#### **2.4.4. Uptake of Infection Prevention Controls Measures when Handling Unclaimed Corpses in Public Mortuaries**

Advisory Committee on Dangerous Pathogens. Classified infectious risks diseases, into four groups, based on infection of pathogens, and its virulence to the mortuary and forensic service providers and the general population health to adhere to using coded polythene liners, (Rowe *et al.*, 2005).

Group 1 and 2 pathogens, labelled BLUE liners, for mild diseases, e.g. MRSA, Cholera, influenza, scabies, Norovirus, (Abdulraheem *et al.*, 2012;Okoth-Okelloh *et al.*, 2015).

Group 3 pathogens labelled YELLOW liners, to indicate, minimal chances to cause cross infections. And may influence significant disease , e.g. Hepatitis B, C, HIV mycobacterium tuberculosis (TB), (Agha, 2012), Salmonella infections: salmonella typhimurium, spongiform encephalopathy, (Creutzfeldt-Jakob disease), and cholera infection, ( Silali *et al.*, 2017).

Group 4 pathogens labelled RED liners, are extremely pathogenic and cause serious epidemic disease to the host e.g. viral hemorrhagic fevers, Marburg fever; Ebola fever. Hence such attributed, autopsy dissections, are carried out in fume chamber, (Agha, 2012). However, classification of these dangerous pathogens, as per specific color liners, in western parts of Kenya, remains selective, as per each level/tier of the, facility mortuary. For instance, Level 6 facility is more informed on color-coding than tier 4 facility mortuaries.

#### **2.4.5 Infection Prevention Control Guidelines when Handling Human**

##### **Remains**

All human remains, acknowledged at any mortuary with or without clear clinical history, are potentially infectious to the population health and the mortuary and forensic service providers , (De Goyet, 1999; Noji, 2000; Cox *et al.*, 2011). When handling unclaimed corpses like the claimed cohorts, following guidelines are keenly examined, (WHO, 2005): Avoid direct contact with blood or body fluids from dead. Observe strict personal hygiene and put on NPIs. Such as double, surgically gloves, water resistant gown and plastic apron over water repellent gown and face masks. Use NPIs to protect eyes during embalment. In case of any splash or cut, covered with water proof bandages or dressings. Do NOT smoke, drink or eat. Do NOT touch your eyes, mouth or nose. Store unclaimed corpses in a robust and leak-proof opaque plastic bag

of not less than 150 µm thick and zip up. (Bagged body should be inserted into another opaque body bag if dead as suspected to be a case of potentially infectious diseases), (Rowe *et al.*, 2005). Remove NPIs after handling death, wash hands with disinfectant, (Schachner and Hansen, 2011). Which remain infrequent in supply and in uptakes by the western parts of Kenyan population health. However, the uptake of infection prevention control, precautions when handling human remains guidelines, in western parts of Kenya is not clearly documented.

#### **2.4.6 Safety Precautions and Safe Environmental Health Controls during Mass grave Disposal in Public Cemeteries**

Safety precautions of mortuary and forensic service providers, during and after execution of unceremonious mass grave disposal in the facility and graveyards surroundings are paramount to empowered and sustained by regular supply of disposable surgical gloves, Non pharmaceutical Interventions, (NPIs), alcohol-based hand rub and disinfectant, such as sodium hypochlorite, (Pham *et al.*, 2020; Bedoya *et al.*, 2017).

After use, disposable items like gloves and protective clothing. Should be disposed of in Yellow plastic bag liners. Tissue remnants in Red liners, and food remnants in black liners,(Advisory Committee, 2003;Silali *et al.*, 2017). Ensure open wounds, cuts and abrasions covered with waterproof bandages or dressings. Do NOT smoke, drink or eat. Do NOT touch your eyes, mouth or nose. Observe strict personal hygiene. Practice regular hand hygiene, (Mara and Evans, 2018). Remove all, NPIs after handling dead or contaminated surfaces then wash hands with disinfectant and in running tap water, (Bedoya *et al.*, 2017). Mortuary linens soiled with blood, or body fluids can be laundered in a washing machine with a hot washing cycle less than 70c°, or soaked in

fresh 1 in 50 diluted sodium hypochlorite, for 30 minutes before washing, Sodhi *et al.*, (2013).

Contaminated mortuary surfaces and floor wiped with freshly prepared 1 in 50 diluted sodium hypochlorite for 30 minutes before washing. Then rinsed in running water. Metal surfaces wiped with 70% alcohol. Surfaces visibly soiled with blood and body fluids should be wiped with 1:5 sodium hypochlorite, leave it for 10 minutes, then rinse with water, (Bedoya *et al.*, 2017). Hepatitis B, Cholera and Tuberculosis vaccines recommended for mortuary/ forensic service providers. A high standard of personal hygiene should be adopted, (Percy, 2005).

However, the information on safety precautions and safe environmental health of the mortuary and forensic service providers, during mass grave disposal in public cemeteries in western parts of, remains scanty and inadequate.

## **2.5. Behavioral Effect on KAP by Mortuary and Forensic Service Providers on Occupational Epidemics, Medicolegal procedures Health laws and Health System Factors Attributed with Unceremonious Mass Grave Disposal**

Quality Knowledge, attitude and practices behavioral (KAP) on infection prevention control, measures form benchmarks for a Health Nation for a Health Community Households, (WHO), 2017). Safe community livelihoods, influence quality uptake of medico legal, with a declined uptake of health laws by PHOs and Resident magistrates, to enhance dignified disposal of the previously unclaimed corpses, with zero prevalence of epidemics during and after mass grave disposal, (A Moran and Onwube, 2013).

Quality KAP of mortuary and forensic service providers, on the health hygiene and sanitation, decrease probabilities, to spread disseminated infection, or cross infection, (De Goyet, 1999; Noji, 2000; Mara and Evans, 2018). Globally, three and half million healthworkers have exposure to occupational blood-borne pathogens, of which each year, 2 million service providers attributed to hepatitis B virus (HBV). 0.9 Million to hepatitis C virus (HCV), (WHO), 2017), 170,000 are HIV, of which mortuary and forensic service providers are at high risk of acquiring transmission from occupational exposure to mortuary infectious infections. Attributed to deficiency of embalment, that inhibit forensic evidence, congestion and cold storage overstay during the “cold hit” investigations. Inadequate quality KAP of mortuary and forensic service providers, on the uptake of infection prevention control, measures have negatively affected both population health and the environment health, as evidenced in among few diseased morticians with Tuberculosis and fungi disease, (Mara and Evans, 2018). Associated with, deprived infection prevention control measures, on the clinical cases, not from the previously unclaimed corpses, (Murrell, 2011; Watkins *et al.*, 2006).

The study in Nigeria established that, inadequate level of knowledge, skills and practices, KAP on infection prevention control, measures and application of medico legal procedures, might also give rise, to the increased execution of the health laws, by PHOs and resident magistrates to govern medico legal procedures, as a Primary Prevention on further exposures to occupational health epidemics. (Amoran and Onwube, 2013).

The study, also established that mortuary and forensic service providers rarely adhered to quality infection prevention control standards, when offering the forensic services, (Bedoya *et al.*, 2017 ; Rowe *et al.*, 2005; Marangu, 2020).

However, on this study in western parts of Kenya, there are no,any scholarly documentations and good research works, to demonstrate how KAPs of mortuary and forensic service providers have influenced occupational epidemics, medico legal procedures health laws and health system factors to cause, improper unceremonious mass grave disposal of unclaimed corpses,by the public mortuaries.

## **2.6 Theoretical Statement**

Though most studies have focused to develop and improving the existing mortuary and forensic services to the general population health, and their infection prevention control measures on occupational health epidemics, exposed by inpatients, outpatient, embalmers, mortuary and forensic service providers like other and the health service providers from the facility. Have focused on clinical Medicolegal procedures and Health laws attributed to reproductive health or family life, disparities like children borne outside the wedlock. Also most studies have focused on quality infrastructure in public mortuaries and human resource from core discipline of forensic medicine since the independence, like most studies, have also recognized the role of mortuary premises, mortuary and forensic service providers, as key components of the facility to mediate quality healthcare. Have focused on the urgent need to construct Interpol view yellow notices, ultra-modern DNA plant to enable, and the National police services, do prompt finger print abstractions, to rule criminal malpractices on cold hit unclaimed corpses. The replenishing rates of the essential embalmmnt reagents, and establishment of functional department of forensic science, as cradle Health system factors, to improve mortuary and forensic services. Lastly, installed service charters and regular exist interview mechanisms to personnel looking for green pastures, as

measure of KAP towards, future quality improvement of mortuary and forensic services.

However, there is need to utilize the holistic approach to determine, the occupational health epidemics, medico legal procedures health laws and health system factors and quality KAP of mortuary and forensic service providers' attributed with improper unceremonious mass grave disposal of unclaimed corpses by public mortuaries in western parts of Kenya.

## **2.7 Conceptual Statement**

From the literature review, it is clear that, the whole community of health care, mortuary and forensic service providers in Kenya, may have diagnosed the gradual increasing numbers in the improper unceremonious mass grave disposal of unclaimed corpses, carried out by most public mortuaries time from the independence. Candidly these have been associated with may be first, the increased propagated occupational epidemics. Secondly, completely, failure of the national police services to implement quality medico legal procedures, with the 90 days of cold storage of "cold hit" investigations. Thirdly, the increased application of health laws governing medico legal procedures by PHOs and Resident magistrates, to legalize the unceremonious mass grave disposal of unclaimed corpses in public cemeteries, using court orders and affidavits for consents justice and accountability. Lastly inadequate and tilted uptake of health system factors as basic variables to enable dignified disposal of previously unclaimed corpses. However, there is need to establish how quality KAP of mortuary and forensic service providers, and their associated stakeholders, may influence improper unceremonious mass grave disposal of unclaimed corpses by the public mortuaries in western parts of Kenya.

These factors were used to construct the conceptual frame work and operational frameworks,as illustrated in conceptual frameworks in Figure, 2.1 and table 2.1, below,(Dine *et al.*, 2015).



## 2.8 Conceptual Frame Works, on Variables Influencing Mass grave Disposal of Unclaimed Corpses in western Kenya

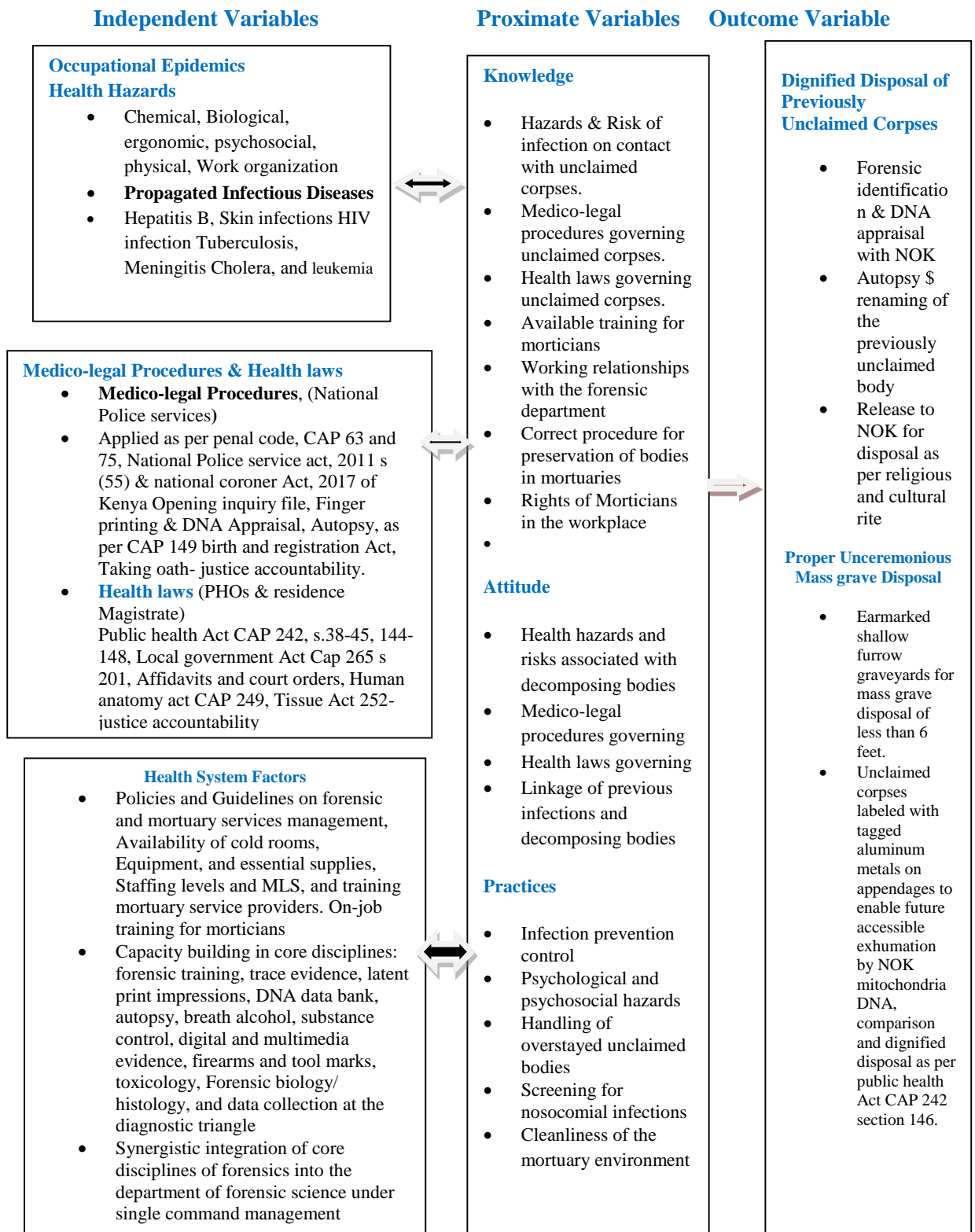


Figure 2.1: Conceptual Frameworks on the Study, Source: (Dine *et al.*, 2015)

**Table 2.1: Conceptualization of Theoretical Frameworks**

<b>VARIABLE</b>	<b>DEFINITION</b>	<b>COMPONENTS</b>
<b>Occupational Epidemics</b>		
Health hazards	An object or environment that is potential able to cause occupational disease	<ul style="list-style-type: none"> <li>• Ergonomic hazards,</li> <li>• Chemical hazards</li> <li>• Biological hazards,</li> <li>• Psychosocial hazards,</li> <li>• Physical hazards</li> </ul>
Infectious Diseases	Biological hazards that have capability to infect mortuary and forensic service providers when exposed to unclaimed corpses	<ul style="list-style-type: none"> <li>• Work organization hazards</li> <li>• Integument maceration</li> <li>• Tuberculosis,</li> <li>• Hepatitis B and C antigen</li> <li>• Skin infection</li> <li>• HIV/ AIDs</li> <li>• Cholera</li> <li>• Leukemia</li> </ul>
<b>Medico legal Procedures</b>	<p><b>Standard medicolegal steps</b> Main implementers' (<b>National policeservices</b>) Police services describe diagnostic triangle, secure the scene with crime tape, forensic photos, attributed to dead, scene &amp; statements from primary witnesses, to determine the manner. Open autopsy files. Acknowledge unclaimed corpses, in public mortuaries. Initiate forensic investigations, of finger print abstractions. Search NOK, via secured networks &amp; upload photos of the deceased, Interpol yellow view notices, and interlinked, County forensic centers in Kenya. NOK may take vows before resident magistrates, to mediate consents for justice &amp; accountability of the human remains, and evade autopsy dissections, due to contrary to religious and cultural rites, (Islamic religion). An autopsy on previously unclaimed corpses</p> <p>The main implementers are (PHOs) and Resident Magistrates, to sustain Primary prevention and legal consent of human remains for, justice and accountability to the health population,</p>	<ul style="list-style-type: none"> <li>• Utilization of these cured networks 1-24/7. police signal 7 and 8 to search NOK to come for DNA appraisals. As per the criminal penal code CAP 63 § 75, national police Act, 2011 s (55), national coroner Act, 2017.</li> <li>• Autopsy for previously unclaimed corpses. To notify the government as per CAP 149 of the Birth and Death Registration Act on the manner and nature of dead by a medical doctor or pathologist.</li> <li>• NOK takes an oath before the nearest Resident Magistrate for justice accountability, to claim the names of the deceased to enable payment of mortuary bills.</li> <li>• Released for dignified disposal as religious and cultural rites</li> </ul>
<b>Health Laws</b>		<ul style="list-style-type: none"> <li>• Public Health Act CAP 242, s 38-44. 144-148</li> <li>• Local government Act Cap 265 section 201- cemetery provision.</li> <li>• Closing of the police file by Police service.</li> <li>• PHOs writing affidavits and notifying the public via notice boards or media for 21 days</li> <li>• The resident magistrate uses the affidavit to provide Court for justice accountability</li> </ul>

<p><b>Health System Factors</b></p>	<p>The overall forensic infrastructural amenities, professionalization of mortuary and forensic services in line with the core disciplines of forensic medicine, in an integrated department of forensic science under single command management, Accessibility of essential supplies, equipment, cold room serviceability, and habitual forensic capacity building Recruitment of personnel on a permanent basis.</p>	<p>of unclaimed corpses as per Human Anatomy Act CAP 249 for consent to do mass grave disposals as per human tissue Act CAP 252 for therapy or cadavers</p> <ul style="list-style-type: none"> <li>• Proper mass grave disposal entails, Aluminum tag labeling on appendages and shallow furrows earmarked grave yards, with mortuary registers, less than 6 feet deep, to enable, future exhumation , for mitochondria DNA appraisal with NOK</li> <li>• Policies and Guidelines on Forensic &amp; mortuary services management, Availability of cold rooms, Equipment and Supplies, Staffing Levels and MLS, and Training of mortuary service providers. On the job training for morticians</li> <li>• Forensic service training in core disciplines: forensic training, trace evidence, latent print impressions, DNA data bank, autopsy, breath alcohol, substance control, digital and multimedia evidence, firearms and tool marks, toxicology, Forensic biology/ histology, and data collection at the diagnostic triangle</li> </ul>
<p><b>Knowledge Attitude and Practices (KAP)</b></p>	<p>proximate factors the effect outcome on Decreasing improper unceremonious mass disposal of the unclaimed corpses in western Kenya, as per Maslow theory of job morale and satisfactions</p>	<p><b>Knowledge</b></p> <ul style="list-style-type: none"> <li>• <i>Hazards &amp; Risk of infection on contact with unclaimed corpses.</i></li> <li>• <i>Medico-legal procedures governing unclaimed corpses.</i></li> <li>• <i>Health laws governing unclaimed corpses.</i></li> <li>• <i>Health systems governing forensic services</i></li> <li>• <i>Core disciplines of forensic medicine</i></li> <li>• <i>Available trainings for morticians</i></li> <li>• <i>Working relationships with the forensic department</i></li> <li>• <i>Correct procedure for preservation of bodies in mortuaries</i></li> <li>• <i>Rights of Morticians in the work place</i></li> <li>•</li> </ul> <p><b>Attitude</b></p> <ul style="list-style-type: none"> <li>• <i>Health hazards and risks associated with decomposing bodies</i></li> <li>• <i>Health systems governing forensic services</i></li> <li>• <i>Core disciplines of forensic medicine</i></li> <li>• <i>Medico-legal procedures governing</i></li> <li>• <i>Health laws governing</i></li> <li>• <i>Linkage of previous infections and decomposing bodies</i></li> </ul>

---

**Practices**

- *Infection prevention control*
  - *Psychological and psychosocial hazards*
  - *Handling of overstayed unclaimed bodies*
  - *Screening for nosocomial infections*
  - *Cleanliness of the mortuary environment*
- 

## **2.9 Study Summary and Research Gaps**

The timely, acknowledgment of infection prevention control, and measures, on occupational epidemics. Appropriate knowledge and skills of medico-legal uptake, indecreased implementation of Health laws. By the PHOs and Resident magistrates in public facility mortuaries, continue to pretense significant positive relationships, in the provision of quality mortuary and forensic services to population health (Published by the National Council for Law Reporting & with the Authority of the Attorney-General, 2012; Cocco, 2002; Grant, 2018; Mara & Evans, 2018; Moody *et al.*, 2005; Okoth-Okelloh *et al.*, 2015). However, the uptake of quality infection prevention control measures against, occupational epidemics, medicolegal procedures, health laws, health system factors, and the influence of KAP by stakeholders, mortuary and forensic service providers on improper unceremonious mass grave disposal of unclaimed corpses, by public mortuaries, have not been rigorously studied in a comprehensive and holistic approach of forensic medicine. The studies have verified, that the National police services have remained unsuccessful to implement most of the medico-legal procedures as, per the criminal penal code CAP 63 and 75, National police service Act, 2011 section 55, and the national coroner Act, 2017 of Kenya, Mutethia, (2020). Studies on the uptake of health laws governing medicolegal procedures, by the PHOs and Resident magistrates are significant. However, it has a negatively impact on the release of consent approval of the unceremonious mass grave disposal in public

mortuaries, (Abdulraheem *et al.*, 2012). Studies on health system factors have failed to work under single integrated command management. To provide quality forensic health care to the health population. An expert forensic, observation study, discovered that proportions, of the law-neglected minor cohort of unclaimed corpses, (fetus and juvenile cohorts), are on the increase, since the independence. Hence, there is a timely need to construct ultra-modern DNA combined indexing system CODIS, in Kenya's Bureau of Statistics to capture the DNA of the fetus and juvenile cohorts like adults, right from conception, as per Chapter 4 of the Constitution on the Bill of Rights in Kenya, Mutethia, (2020).

Proper mass grave disposal, has failed to be realized by the majority of public facility mortuaries. It entails the excavation of shallow furrow mass graveyards of less than 6 feet, in earmarked graveyards with mortuary registers per year, to lay unclaimed corpses with aluminum metal tags on appendages. To enable future exhumation, as per public health Act CAP 242, section 146. Rather than the current strapping on the frontal skull, with the words “*unknown Body Date of death*” (Watkins *et al.*, 2006), (Rasskazova *et al.*, 2016; M. B. Silali, 2017; Sodhiet *al.*, 2013). Studies have furthermore, shown that mortuary and forensic providers' knowledge, attitude, and practice (KAPs), have greatly influenced the intervention process, of unceremonious mass grave disposal of unclaimed corpses by public mortuaries in Kenya and the study area. Which may infringe, on the uptake of Chapter 4 of the Bill of human rights to life, Mutethia, (2020). Similarly, there are noted inadequate studies that have been done, to measure how knowledge, attitudes, and practices / perceptions (KAP) of mortuary and forensic service providers, influence improper mass grave disposal. Regrettably, the current setting of mortuary and forensic services in the ministry of Health, has no

tailored packages of core forensic disciplines,integrated into single command management of the Department of forensic sciences, namely (Forensic fingerprint identification, forensic pathology, forensic anthropology, and forensic odontology. Forensic laboratory medicine, forensic entomology, forensic radiology, photography, molecular biology, and Mortuary science), integrated to deliver forensic services in a single unit of sector-wide approach (SWAPs), model, for sustainable forensic and health care. The literature revised, suggested the nonexistence of accessible reliable evidence, for estimating the role of each forensic discipline and unlocking the improper unceremonious mass grave disposal of unclaimed corpse practices in society.

## CHAPTER THREE

### MATERIAL AND METHODS

#### 3.1 Study Area

Western parts of Kenya in (Appendix V), cover 26,793 km<sup>2</sup> with a 2019 population census of 13,444,949 population health, (Macharia *et al.*, 2021; Statistics, 2010) and a population Density of 1842/km<sup>2</sup>. The region parts lies at a longitude of 33° 37`E to 33°55`E, and a latitude of 1° 8`N, 1° 40`S, the facility in the study area with the highest altitude is Kitale County Referral Hospital, the north of Trans nzioa County, which is well known for Agriculture in large scale maize and dairy farming besides its marked rurals – rurals and rural urban migrations throughout the year. Busia County referral hospital, Bordering Uganda is on the lowest altitude and well known for mixed cropping and border micro business. The main level 6 and referral facility in the study region, is Moi Teaching and Referral Hospital, (MTRH) located in the North East, well known as the city of champions in athletics, and large scale farming of rice and dairy farming. Migori County referral hospital, borders on the south, with Tanzania and peasant and fish farming. Siaya and Mbale County facilities lie at the Equator, and practice mixed farming on small scales, (Fox, 2014; Macharia *et al.*, 2021). **Table 3.1** below shows the distribution of the study County facility headquarters in western parts of Kenya, which contain facilities used for data collection on occupational health epidemic, medicolegal procedures, health laws, and health system factors attributed to unceremonious mass grave disposal of unclaimed corpses by public mortuaries in western Kenya.

**Table 3.1: Distribution of Study County Facility Headquarters in Western of Kenya, with Mortuaries Facilities fo Study**

<b>Code</b>	<b>County</b>	<b>Area/km<sup>2</sup></b>	<b>2009 Census</b>	<b>Capital Headquarters</b>	<b>Former Province</b>
26	Trans-nzoia	2469.9	818,757	Kitale	Rift Valley
27	UasinGishu	2955.3	894,179	Eldoret	Rift Valley
37	Kakamega	3,033.8	1,660,651	Kakamega	Western
38	Vihiga	531.3	554,622	Mbale	Western
39	Bungoma	2206.9	1375,063	Bungoma	Western
40	Busia	1628.4	742,966	Busia	Western
41	Siaya	2496.1	842,304	Siaya	Nyanza
42	Kisumu	2009.5	968,909	Kisumu	Nyanza
43	Homa Bay	3154.7	963,794	Homa Bay	Nyanza
44	Migori	2586.4	917,170	Migori	Nyanza
45	Kisii	1317.9	1,152,282	Kisii	Nyanza
46	Nyamira	912.5	598,252	Nyamira	Nyanza
<b>Total</b>		<b>25302.7</b>	<b>11,488,949</b>		

The determination of occupational health epidemics. Medicolegal procedures, health laws, and Health system factors attributed to unceremonious mass grave disposal of unclaimed corpses by public mortuaries in Western parts of Kenya. Was carried out in public health facilities of tiers, 3, 4, and level 5 and 6 facilities, located in administrative and political map units (Appendix v) where medicolegal frameworks, were initiated, and are being utilized, to enable dignified disposal of the previously unclaimed corpses and decrease unceremonious mass grave disposal of unclaimed corpses by the public mortuaries. Although the total numbers of public health facilities in western parts of Kenya are over 490, only 20 health facilities met the threshold of the inclusion criteria. (Participating occupational health epidemics, medicolegal procedures, health laws, and Health system factors attributed to unceremonious mass grave disposal of unclaimed corpses by public mortuaries in western parts of Kenya). With the structural support from the National medicolegal unit, where the respondents who made inclusion criteria filled out the consent form (*See Appendix IV*)



### 3.2 Study Designs

Two study designs were used, to explore and collect data in two study populations consisting of mainly mortuary and forensic service providers, as the primary study population applied cross-sectional descriptive designs. Then cohort study design was used to collect data on unclaimed corpses (secondary study population), through a 5 years retrospective and 3 months of data collection rapid desk reviews of police case mortuary registers and records sampling technique, as the sampling frame of the “*Unknown body*”, *date of death*, for the past 5 years, (2017 – 2021).

Primary study population, data was actively taken at the point of data collection on the target population, of that specific target facility of study approved by the Department of forensic sciences. For confirmed cases, of occupational epidemics, all confirmed respondents present in the facility or transferred to another mortuary facility, were followed up through cell phone calling and snowball sampling techniques. Where, then, he could also call any other mortuary or forensic service provider affected by the same occupational health epidemics to give data of his /her information on the fate of the disease, which was not captured in the first rapid desk review of the past 5 years. Then, the chief researcher made followed up for any newly affected respondents with the mortuary disease. Thus, snowball-sampling techniques consumed, in such cases are attributed to occupational health epidemics. Their data retrospectively and prospectively evaluated, for 5 years and 3 months of data collection respectively, to establish validity and reliability of the occupational mortuary infections, attributed to exposure to unclaimed corpses, using a retrospective desk review form, (Appendix vii). Active surveys and interviews determine the uptake of medico-legal procedures, health laws, and health system factors using purposive census on each specific facility

due to limited human resources deployment in this section. Besides determining how KAP may influence the unceremonious mass grave disposal of unclaimed corpses by public mortuaries.

In the Secondary study population, Cohort study designs were exploited, using a Passive retrospective rapid desk review of the unclaimed corpse's data information, as a sampling technique for all target populations, acknowledged by the national police services. The desk review data collected passively from the mortuary sampling frames of the police case registers was done mainly by the principal researcher, like filling in the retrospective desk review form, (Appendix vii). Through surveying and performing a few KIIs interviews to triangulate specific sensitive mortuary and forensic epidemiologic data, were captured during the survey in the retrospective desk reviews and interviews during the 3 months of data collection in the field.

Quantitative and qualitative data collection, analysis, and presentation were adopted. Retrospective desk review, of the cohort design also, collected data from the law-neglected cohorts of unclaimed corpses, since independence in Kenya, (fetus and juvenile) and adults' unclaimed corpses of both male and female genders. In descriptive cross-sectional data, the same respondents used quantitative to answer semi-structured questionnaires, provided also qualitative data.

All discussed the qualitative variables attributed to occupational health epidemics, medico-legal procedures, health laws, health system factors, and how KAP variables influence unceremonious mass grave disposal of unclaimed corpses, to establish qualitative data at that point of saturation of subthemes and triangulations of the verbatim as *captions*, via discussions and observation rule of 3Ls, (look, listen and learn).

The study designs applied in 20 health facilities of tiers 3 and 4. Level 5 and level 6 facilities located in western parts of Kenya, accredited and approved by the Department of Forensic Pathology, to offer medicolegal procedures on unclaimed corpses.

Data collection, is done in 3 phases. Phase one, involved a review of past medical records of mortuary and forensic service providers, using retrospective desk review forms, like the unclaimed corpses, (fetuses, juveniles, adults), of the past 5 years, and collecting their empirical data in the retrospective desk form. Phase two, entail in-depth interviews, (KIIs) and focus group discussion (FGDs), of mortuary and forensic service providers, such as morticians, pathologists, Public Health Officers, health records officers, National police services, Health Facility administrators, community-owned resource persons. Using KIIs, FGD, and observation guides, on epidemiologic and forensic services techniques. Phase three, was mainly, a prospective review of secondary study subjects, and snowball followup on the primary target population, of the mortuary and forensic service providers, whose medical records, were positive for occupational health epidemics in phase one, made with the follow-up but moved to a neighboring facility mortuary in search for green pastures.

### **3.3 Study Population**

The primary study population were mainly mortuary and forensic service providers, and they included mainly Morticians, National police services, medical officers, forensic pathologists, Health record officer in level 6 facility, PHOs mortuary Superintendents, Forensic scientist / technologist, embalmers Health Administrators, as demonstrated in table 3.2 below with their expected jurisdictions, as far as forensic services is concerned.

The secondary study population was primarily unclaimed corpses, captured, through the rapid desk review in the past 5 years' records (2017 – 2021) and 3 months of data collection. On the uptake of infection, prevention controls on the occupational health epidemics, and medicolegal procedures attributed to unceremonious mass grave disposal of unclaimed corpses. Sampling techniques explored included mainly active a purposive census for the primary study population and a passive retrospective desk review of all unclaimed corpses acknowledged in public mortuaries. By the national police services, namely, fetus, juvenile, and adult males and females, as police cases, in the mortuary registers from January 2017 to December 2021. The key forensic variables surveyed in the unclaimed corpses included, age by gender, total unclaimed corpses acknowledged in the past 5 years, the total number of fingerprint abstractions that were searched, traced and DNA appraisals done with the NOK, the total number of an autopsy done and death notifications issued, as per CAP 149 of birth and Death Registration Act. A total number of unclaimed corpses, issued with court orders and affidavits, as main legal consents for justice and accountability, as per Human Anatomy Act Cap 249 on consent, and Human Tissue Act CAP 252 for therapy and cadavers, as distinct tools for medical education. Besides mediating for unceremonious mass grave disposal of unclaimed corpses in public cemeteries, as per local authority Act Cap 265 section 201. In addition, fetus and juvenile unclaimed corpses acknowledged in the public mortuaries, in the past 5 years, were also reviewed retrospectively, like the adult unclaimed corpses, to determine the general impact of the infringement of Chapter 4 of the Kenyan Constitution, on the Bill of Rights to life right, from the conceptions. And the unceremonious mass grave disposal of juveniles, with NOK torture, and deceased victim torture, due to existing total silence and minors neglected

laws, since independence on what to do, when handling unclaimed fetuses and juvenile minor cohorts in Kenyan society.

**Table 3.2: Dispersal of Primary Study Population in Western Parts of Kenya (Mortuary and Forensic Service Providers)**

<b>Mortuary &amp; Forensic Service Provider</b>	<b>Study Population, as per Coroner Service</b>	<b>Jurisdiction</b>	<b>Census Survey</b>
Forensic pathologist/ Medical officer	Autopsy, as per CAP 149 of the birth registration and Death Act.	Perform autopsy	8
National Police services	Medico-legal framework implementers	Inquest forensic service	20
Resident magistrates and PHOs	Health laws governing medico-legal procedures Implementers, as per human anatomy Act CAP 249 & human tissue Act CAP 252- consents of human remain justice accountability, therapy & cadavers approval	Issue of Court orders and affidavits- legal consents for justice and accountability of human remains	20
Custodians of unclaimed bodies during cold storage “cold hit” investigations	Morticians, embalmers, coroners, mortuary Superintendents	Overall Body Care	182
Next of Kin (NOK)	Close family members, extended family members, good Samaritans, social capital in neighborhoods	Representative of the unclaimed corpse to enable DNA comparisons, forensic identifications	00
MOH	Hospital Administrators Medical officers	Mortuary coordination & management	20
Health records documentation officers	Health record officer in level 6 facility	Document & file bodies	3
<b>Total Sample Size</b>			<b>253</b>

### **3.3.1 Inclusion Criteria for Target Population**

Inclusion criteria were mainly (Primary target population), mortuary and forensic service providers: tabulated in Table 3.2 above. As the Morticians, coroners, forensic technologists, embalmers, Pathologists, Public Health Officers, national police services and Health Administrators, health record officers and mortuary Superintendents. Who had worked in a specific public mortuary for more than six months, are well sound physically and mentally, and are ready to sign consent to participate in the study. Provide their past and present medical history.

Retrospective desk review records, of the unclaimed corpses, (secondary study population), consisted of a fetus, juveniles, and adults unclaimed corpses. Whose data for the last 5 years and 3 months of data collection were collected, using retrospective desk review form?. All must acknowledged in the public mortuaries by the police service with specific manner deaths. Such as road traffic accidents, mob justice, murder, drowning in large water, induced abortion, and abandonment in public forests, as the key variables for constituting the target population, to measure the standard medicolegal procedures uptake. Rather than manners of bringing in death, suicide, homicides, strangulation, and shooting. Already claimed by NOK or Samaritans through community social capital and searching before the study begins.

### **3.3.2 Exclusion Criteria of the Study Population**

Mortuary and forensic service providers, who are mentally incapacitated, at the time of 3 months of data collection, were excluded in the study example, 24/7 drunkard morticians were not included in the study. Recently recruited mortuary or forensic service provider excluded from the study. Mortuary and forensic service providers, who have worked in that specific mortuary for less than six months, those NOT willing

to disclose their medical history, or very new with knowledge and skills of medicolegal and health laws frameworks were excluded. Previously unclaimed fetuses, juveniles and adults acknowledged in public mortuaries, but now claimed by NOK, during that specific period of study, were also not included in the study. PHOs currently dealing with Health sanitation and vaccine in the facility.

### 3.4 Sample Size Determination

The sample size was determined by the Fisher formula, (Sweeney & Fisher, 1998), and adjusted by a finite formula in twenty (20) public health facilities executing occupational health epidemics, medico-legal procedures, health laws, and health system factors attributed to unceremonious mass grave disposal of unclaimed corpses, by public mortuaries in western parts of Kenya with an estimated target population of 600 respondents.

Fisher’s formula states:

$$n = \frac{Z^2 pq}{d^2}$$

Where

n = target population greater than 10,000

Z = degree of confidence (1.96)

p = Population of estimated study /target population (0.50)

q = proportion of the acceptance proportion significance of respondents estimated to be traced. (0 .50)

d = level of statistical test, 0.05

$$n = \frac{(1.96)^2 (0.5) (.05)}{(0.05)^2} = \frac{9604}{25}$$

$$n = 384$$

Adjustment of the sample size, was done, using the Finite population correction formula, (Naing *et al.*, 2006), because the estimated sample size from public health facilities in western Kenya was below 10,000 respondents.

Hence corrected sample size:

$$nf = \frac{n}{1 + \left(\frac{n}{N}\right)}$$

Where

nf= desired small sample size of respondents was less than 10,000.

n= desired large sample size of respondents was more than 10,000

N = total estimated study/target population size (600)

Hence:

$$\begin{aligned} nf &= \frac{384}{1 + \frac{384}{600}} \\ &= 235 \text{ respondents} \end{aligned}$$

Overall, the sample size, was 235 mortuary service providers. In addition, 10% were non-response participants. (235+24) = 259, participants.

However, during the desk review census, of the valid functional mortuary and forensic service providers counted, to be viable in service in 2021 sampling frames, were only 253. Hence, all 253 mortuary forensic service providers in the western parts of Kenya were surveyed and interviewed. Then, were earmarked, as valid and reliable sample sizes from their specific (registers), and sampling frames of the target population from the study region, as distributed in table 3.3 below.



**Table 3.3: Distribution of Target Study Population (Mortuary and Forensic Service Providers)**

S/ N	Facility	Tier/ Level	Primary Respondents	Other Forensic Service Providers	Baseline on Respondents	census Valid	Rate of Mass grave Disposal per annum
1	Kitale	4	10	3	12	Half	
2	MTRH	6	18	3	21	Quarterly	
3	UasinGishu	4	10	3	11	Half	
4	Kakamega	5	20	3	22	Quarterly	
5	Butere	4	6	3	8	Half	
6	Iguhu	4	9	3	11	Half	
7	lumakanda	4	08	3	12	Half	
8	Vihiga	4	09	3	12	Half	
9	Kimilili	4	06	3	09	Half	
10	Bungoma	4	13	4	17	Quarterly	
11	Siaya	4	6	3	9	Half	
12	Yala	3	5	3	8	Half	
13	Oyugis	3	3	2	05	half	
14	Kisumu PGH	6	15	3	17	Quarterly	
15	Kisumu Dist.	4	6	4	10	Quarterly	
16	Homa Bay	4	10	3	13	Quarterly	
17	Migori	4	11	3	14	Quarterly	
18	Rongo	4	4	3	7	Quarterly	
19	Kisii	5	8	3	11	Quarterly	
20	Nyamira	4	6	4	10	Quarterly	
<b>Total</b>			<b>190</b>	<b>63</b>	<b>253</b>		

Source: Baseline Sampling frame from 20 study facilities units in western parts of Kenya, (2022)

### 3.4 Study Variables

**Table 3.4: Study Variables with their Exact Measurable Indicators**

TYPE OF VARIABLE S	STUDY VARIABLES SSILA	MEASURABLE INDICATORS
<b>Outcome</b>	Dignified disposal of previously unclaimed corpses as per religious & cultural rites	Prompt application of medico-legal procedure by the national police services as per the criminal code CAP 63 § 75, Coroner Act 2017, and national police service Act 2011 s 55
	Proper mass grave disposal of unclaimed corpses by public mortuaries	Unclaimed corpses mass graved in earmarked graveyards, with the year of sampling frame registers in shallow furrow graveyards with well-labeled aluminum metal tags on appendages. As per public health Act CAP 242, section 146.
	Improper mass grave disposal of unclaimed corpses by public mortuaries	Unclaimed corpses mass graved deep excavated graveyards of more than 6feet. No earmarks with the recoded in mortuary registers, and labeled with facility strapping on the frontal head “ <i>unknown body</i> ” The number of incidence of health hazards: chemical, ergonomic, biological, physical, and work organization affected mortuary /forensic service providers. A number of mortuary/ forensic service providers vaccinated against HBV.HCV, cholera, meningitis, and skin infection
<b>Independent</b>	Occupational Epidemics	A number of mortuary service providers vaccinated against TB and X-rays. Number of respondents aware of the role of police inquest files Number of mortuary service providers affected by cholera infection and how intervened
	Medicolegal Procedures	A number of mortuary and forensic service providers equipped with the knowledge, and skills of the national police services as per criminal penal code Cap 75, national police service Act, 2011 s 55, national coroner Act,2017, e.g. finger abstractions and DNA appraisal and perform an autopsy as per, birth and death registration Act. Cap, 149.
	Health laws	Number of mortuary and forensic service providers trained to apply health laws governing medico-legal procedures like PHOs and resident magistrates as per Public health act CAP 242 and local government act cap 265 section 201. Human Anatomy Act CAP249 and

---

		Human Tissue Act Cap, 252 trained on the Number of mortuary /forensic service providers with knowledge and awareness in next of kin rights to participate in forensic investigation.
		Number of mortuary and forensic service providers with professional skills and expertise in both mortuary and forensic medicine.
	<b>Health system factors.</b>	Presence of a single department of forensic science integrated with all core disciplines of forensic medicine, under one command management. Number of facilities with serviceable cold rooms A number of facilities equipped with supplies for infection prevention control, practices. A number of mortuary/ forensic service providers retrenched due to a lack of supporting certificated to work in the mortuary. Number of morticians using NPIs Number, of mortuary service providers with trained certificates in forensic science: Pre-serving- training level, forensic pathology, Post basic training, the job training, or Forensic continuous education. Type and method of embalming used. A number of mortuary service providers trained to provide quality embalming. Number of mortuary and forensic science providers with appropriate forensic technologies of fingerprint identification/ DNA appraisals, autopsy. Court order affidavits writing, embalming, and mass disposing of unclaimed corpses with tagged aluminum to enable future exhumation in earmarked shallow furrow graves. A number of mortuary service providers with knowledge and skills in mortuary and forensic services.
<b>Proximate factors</b>	<b>Knowledge</b>	
	<b>Attitude</b>	The number of mortuary and service providers with the set mind to decrease unceremonious mass grave disposal, (“within 90 days of cold storage of cold hit”). A number of mortuary and forensic service providers with determined cultural diversity on unclaimed corpses.
	<b>Practices</b>	Number of mortuary service providers with various cultural contexts, virtues \$ and rites attached to unclaimed corpses

---

### **3.5 Data Analysis Plan as per Each Specific Objective**

**Table 3.5:** Below demonstrate data analysis and presentation plans to establish health epidemics, medico-legal procedures, health laws and health factors, attributed tounceremonious mass grave disposal by public mortuaries

### **3.6 Sampling Techniques**

The study engaged in clusters purposive, active census sampling to synergistically participate in survey and interview using semi-structured questionnaires, KIIs, and FGDs techniques to collect data, from the primary study population (mortuary and forensic service providers). As illustrated in **Table 3.3** on the distribution of the primary study population in the study region. Overriding the survey and interview methods, as per the prevailing cluster of the mortuary and forensic service providers in each level of the health facility, to enable us to use valid tools for data collection. The active census was opted, for due to few mortuary and forensic service providers working in the public mortuaries and most on temporary services. The Snowball sampling technique is used only in specific objective one, to capture, already confirmed mortuary and forensic service providers, with confirmed exposure to occupational epidemics such as tuberculosis. But, have transferred or moved to a neighboring mortuary though is still on medication.

For the unclaimed corpses (secondary study population). Passive, rapid retrospective desk review of data records, for the past 5 years was explored, and prospective desk review was exploited during the 3 months of data collection.

Specific Objective	Research Question	Study Variables	Method Of Data Collection	Data Analysis	Data Presentation
i To assess occupational epidemics, attributed unceremonious mass grave disposal of unclaimed corpses by public mortuaries in western parts of Kenya	Which are available occupational epidemics, attributed to exposure of mortuary service providers' unceremonious mass grave disposal of unclaimed corpses by public mortuaries in western parts of Kenya?	Chemical biological, ergonomic, psychosocial, physical, and work organization hazards. Infectious: - Hepatitis Tuberculosis cholera Meningitis Skin disease Formalin Leukemia	Semi-structured questionnaire Retrospective rapid desk review form  KII guide FGD Observation [3Ls] Desk review form	Descriptive analysis Central tendency and dispersion Inferential statistics Contingency tables OD RR Content analysis of themes and sub-themes to saturations. OD- indicates risk involved in delaying disposal RR - calculate the level of exposed population and unexposed population to develop infection	Bar charts, tables, and graphs - demonstrate the significance of the study variable , P value, less than 0.05, 95%CI and  Attribute significance 1 = no relation, Less than = protective, Greater than 1 = harmful relationships
ii To establish the effectiveness of medico-legal procedures and health laws associated with to unceremonious mass grave disposal of unclaimed corpses by public	What are the main Medico-legal procedures and health laws attributed to unceremonious mass grave disposal of unclaimed corpses by public mortuaries in western parts of Kenya?	National police services opened of inquest file Finger prints & DNA appraisals, to Identify unclaimed bodies and trace NOK via secured 124/7 signal 7 & 8 or Interpol yellow view notices, as per penal code CAP 75, national police service Act, 2011 s 55, and national coroner Act, 2017.	Semi-structured questionnaire KII guide Observation [3Ls]	Descriptive analysis Central tendency and dispersion Logistic Regression Contingency tables OD RR Content analysis of themes and sub-themes to saturation OD- indicates	Bar charts, tables, and graphs - demonstrate the significance of the study variable , P value, less than 0.05, 95%CI and Attribute significance 1 = no relation, less than 1 = protective, greater than 1

<p>mortuaries in western parts of Kenya</p>		<p>Autopsy dissection notifies, the government of the cause &amp; nature of death, as per Birth and death registration Act CAP 149, Oath in court clear of hospital bills Disposal. Letdown of police service to use 1-24/7 secured network to trace NOK. Caused high uptake of Health Laws governing medico-legal procedures: Public Act CAP 242, local government Act CAP 265 to provide cemetery. Affidavits and Court orders for consent, justice &amp; accountability, as per Human Anatomy Act CAP 249 to effect Human Tissue Act CAP 252.</p>		<p>risk involved in delaying disposal RR - calculate the level of exposure and unexposed to develop infection</p>	<p>= harmful relationships Percentage variations.</p>
<p>iii To identify health systems factors attributed to unceremonious mass grave disposal of unclaimed corpses by public mortuaries in western</p>	<p>What are available health system factors, which influence the unceremonious mass grave disposal of unclaimed corpses by public mortuaries in western parts of Kenya?</p>	<p>Integration of the core discipline of forensics into a single command management department of forensic sciences. Availability of cold rooms Equipment and supplies level Training of mortuary service providers Pre-serving-training Embalming</p>	<p>Semi-structured questionnaire KII guide Observation [3Ls</p>	<p>Descriptive analysis Central tendency and dispersion Contingency tables OD RR Content analysis of themes and sub-themes to saturation OD- indicates risk involved in</p>	<p>Bar charts, tables, and graphs - demonstrate the significance of the study variable , P value, less than 0.05, 95%CI and Attribute significance 1 = no relation, less than 1 = protective, greater than 1</p>

parts of Kenya		Post basic training On job training		delaying disposal RR - calculate the level of exposure and unexposed to develop infection	= harmful relationships Percentage variations
iv. To assess how forensic & mortuary service providers behavioural (KAP) influence unceremonious mass grave disposal of unclaimed corpses	To what extent have the behavioral (KAP) of forensic & mortuary service providers influenced unceremonious mass grave disposal of unclaimed corpses by public mortuaries in western parts of Kenya	Explore 3Is of observational studies on body language and utilization of appropriate technology to offer forensic services.	KII guide Observation [3Ls]	Content analysis of themes and sub-themes to saturation Observation by 3Is Audio voice . Knowledge and practice regarding infection prevention Control measures based on the Likert's scale of good, fair, and poor.	Attribute significance Good: (75% or more, the correct complete answer for knowledge and promptly done for practice) Fair: (50% <75% correct incomplete answer for knowledge, done for practice inaccurately) Poor: (<50% incorrect answers for knowledge, not done)

### 3.6.1 Data Collection Strategies

Quantitative data, collected from 253 primary participants, using a semi-structured questionnaire, on the primary study population, Retrospective desk review forms, (Appendix VI and VII), were captured based on demographic characteristics, occupational hazards, occupational Health epidemics, medicolegal procedures, health laws, health system factors, and KAP. Besides the opinions on best practice and the evolving new science in the study, such as the law neglected cohorts (fetus and juvenile). Qualitative data was collected using Key Informant Interviews & FGD tools,

(Appendix VIII and IX) and administered to purposively selected respondents: Pathologists, Medical doctors, Public Health Officers, National police services, Forensic technologists and Hospital Administrators.

20 research assistants clinical officers ( CO) and 20 clerical health records (CHR) adopted, as the main research assistants (one CO and CHR from each facility), and recruited based on their level of education and experience in research. They underwent two days training on how to administer the research instruments, tools and pre-testing of the tools. Research assistants were responsible for assisting the principal researcher to collect data.

### **3.7 Data and Information Collection**

The field data collection team consisted of one team leader. Who is the principal investigator, 20 research assistants, who included 1 Clinical Officer from each facility, and 20 enumerators? Who also, includes 1 health facility information officer from the health information department? The team then divided into two groups based on the site of the facility, they were working from, to facilitate answering questionnaires and content analysis of themes and sub-themes. Using KIIs and FGDs guides administered on the same day of study. The principal researcher of the team upon arrival at the facility, was introduced to the person incharge of the facility to explain the purpose of the study to obtain consent of the ethical clearance, as per each facility's ethical committee's ethical protocol application and review. Consent was obtained from each respondent before the questionnaires were distributed also.

After the respondents consented, questionnaires were filled or ticked out. To collect data for specific objectives. (i) Main occupational health epidemics, attributed to mass grave disposal.(ii) Main medico-legal procedures and health laws attributed to



unceremonious mass disposal, main health system factors attributed to unceremonious mass grave disposal of unclaimed corpses by public mortuaries. Then begin key informant interviews to answer the last specific objective on KAP of mortuary and forensic service providers, on mass grave disposals. After completing the entire task in each facility, the study team cleaned data, by reviewing the filled tools to ensure its completeness and then made the summary before proceeding to the next facility mortuary.

To ensure that quality and clean data is collected, principal investigators were involved, throughout the entire process of data collection, for purposes of ensuring completeness, consistency validity, and accuracy in data collection. Challenges experienced during data collection, were discussed at the end of each day, through regular debriefing meetings.

### **3.7.1 Procedure for Data Collection**

Data collection was ascertained through, the selection and training of research assistants and enumerators, from the target 20 facilities, twenty research assistants (Clinical officers) and twenty enumerators (Facility health information officers) were trained in interview and surveying techniques, counseling, data collection, recording and handling.

All unforeseen challenges likely to come up during the exercise, are addressed in a debriefing workshop organized at the end of every event.

### **3.7.2 Mixed Data Collection and Instruments Development**

For qualitative data collection, I explored in-depth interviews and FGD, to determine the KAP of mortuary service providers. About main occupational health epidemics, trends uptake of medical procedures, health laws, and health system factors attributed to unceremonious mass grave disposal to unclaimed corpses from public mortuaries. KII is utilized by medical officers, Coroner, Public health officers, and National police services. Hospital administrators, Embalmer and forensic pathologists, and mortuary health records clerks. FGDs are applied by morticians. A sampling frame, (list of all mortuary service providers registered) and developed by the chief researcher in partnership with specific facility stakeholders in each MOH. Each facility evaluated based only on all the best opinions from the mortuary and forensic service providers present now.

For quantitative data, semi-structured Questionnaire, was administered to all mortuary service providers of the inclusion criteria, in cluster purposive sampling. The valid number of participants varied, from facility to facility based on the already drawn list of staff present during the active census-sampling frame.

Similarly, all unclaimed corpses, (fetus, juvenile, and adults cohorts), were filled in the rapid retrospective desk review form developed (Appendix VII).

Demographic data on the primary study population were evaluated based on: age, gender, level of education achieved, religion, and marital status, the questionnaire covered all specific objectives, occupational health epidemics Medico-legal procedures, health laws, health system factors, and how KAP influence infection, prevention control practices and unceremonious mass grave disposal in public cemeteries.

Secondary population (unclaimed corpses). Were evaluated based on the accumulative number of acknowledged unclaimed corpses in selected public mortuaries in western parts of Kenya, for the last 5 years, the number of autopsies dissected, death certificates issued, court orders issued, number of latent fingerprint abstractions and DNA appraisals carried out to enable unceremonious mass grave disposal of unclaimed corpses, by public mortuaries in western parts of Kenya.

### **3.7.3 Reliability of Instruments**

Reliability of data instruments and tools: questionnaire, KII, FGD, and Observation checklists, ascertained through a pilot study, at Webuye County referral facility. The facility selected for the pilot purpose of reliability of research instruments. Due to its strategic position in western parts of Kenya. Its relation to a fair number in handling forensic cases, and organized mitigation of occupational epidemics to the health population. Fair uptakes of medico-legal procedures and health laws attributed to unceremonious mass grave disposal of unclaimed corpses, and fair applications of the health system factors in mortuary management. Moreover, fair uptake of KAP in the uptake of infection prevention controls, on occupational health epidemics in synergistic partnerships, with MTRH.

The reliability test ensured that we standardized the semi-structured questionnaires, FGD, KII, and observation checklists to capture only liable valid, and efficient data from the study units.

### **3.7.4 Validity of Instruments**

Validity of data instruments and tools mainly, questionnaires, KIIs, FGDs, and Observation checklists evaluated, through a pilot survey and interview study at Webuye Countyreferral facility. They facility specifically selected to pilot the validity

of research instruments, due to their strategic position in the study region and for the conveniences of the chief researcher in seeking ethical clearances. Since the ethical protocol exempted in totality. Fairness of the facility in uptake of medico-legal and health laws, and KAP in the uptake of infection prevention controls on occupational health epidemics, and its collaboration with Teaching and Referral Hospital, (MTRH).

Validity of the tests ensured the meaningfulness of inferences, descriptive analyses, and quality interpretations of the established standardized structured questionnaires, FGDs, KIIs, and observation checklist on data collected.

Data cleaned to ensure correct entry and analysis, only for valid and complete data analyzed as planned. All questionnaires were coded to ensure the confidentiality of respondents.

### **3.7.5 Quality Assurance of Study Instruments and Tools**

Quality of the instruments and tools achieved by quality recruitment, training, and supervision of research assistants, from the 20 facilities. Twenty research assistants (Clinical officers) and twenty enumerators; (Facility health information officers) trained in interview, monitoring, and evaluation. Counseling, data collection, recording, and handling tools and retain their originality. Missing or questionable data is crosschecked against written records at the central registry. After the end of each discussion, the team sat down and review notes taken to avoid skipping vital messages in qualitative research (edit, summarize while retaining direct quotes).

All unforeseen challenges likely to come up during the exercise were addressed in debriefing workshops, organized at the end of everyday events.

### **3.7.6 Pre-Testing of Research Instruments and Tools**

Testing of research instruments was facilitate for necessary revision and modification of research instruments and tools to enhance validity and reliability for feasible answering or filling of questionnaires. Webuye County referral facility mortuary was selected for the pretesting purpose of research instruments and tools. Due to its strategic position in western parts of Kenya. Conveniences s of the principal researcher,exempted for ethical clearance during the pretesting, and its relation to a fair number of cases. Fair utilization of medico-legal procedures and health laws, fair uptake of health system factors in forensic medicine. Fair uptake KAP in the uptake of infection prevention controls, occupational health epidemics medico-legal procedures, health laws,and fair establishment of healthsystem factorsto determine the candid impacts of the unceremonious mass grave disposal of unclaimed corpses by public mortuaries in western Kenya.

### **3.9 Data Processing and Presentation**

The self-administered questionnaires were checked for completeness. Data forms were coded, created in spread sheets of Excel, verified and cleaned, then exported to SPSS version 26, where both descriptive and inferential analyses were performed. Frequency central tendency data is used to determine occurrences and distribution of the variables under study. Chi-square is used to determine the level of significant relationship among health risk factors, medicolegal procedures, and health system factors. Descriptive analysis used to examine variables according to specific study objectives using Bars, charts, tables, frequencies, percentages, and graphs. Inferential statistics data from the samplewas calculated to generalize on outcome variables with 95% CI

(confidence interval). Data analysis was carried out to get central tendency and dispersion of variables from the mean.

In Inferential statistics, P values of less than 0.05 and 95% Confidence interval (CI) provided a significant relationship between the variables. Bivariate association between the independent variables and dependent variables were assessed, using Pearson's Chi-Square test. Prevalence of exposed Odds ratio OR and Relative Risks RR calculated to indicate occupational health epidemics exposed. Harmful effects had values greater than 1. A protective value less than 1, and 1 meant occupational health exposure, had no relation with the congested and overstayed unclaimed corpses, acknowledged in public mortuaries for cold storage within a span of 90 days of "cold hit" investigations. Contingent tables to calculate OR and relative risk RR, associated with occupational exposure Parshall, (2013), to congested and overstayed unclaimed corpses, acknowledged in public mortuaries for cold storage within the span of 90 days of "cold hit" investigations or the none exposed population health, to develop occupational health epidemics.

Qualitative data was analyzed manually, by content narratives discussions to saturation of themes and sub-themes were transcribed, triangulated, and reported verbatim to establish how (KAP) of mortuary and forensic service providers, influenced infection prevention control practices of occupational health epidemics, and uptake of medico-legal procedures, health laws and health system factors by the public mortuaries.

### **3.10 Logistics and Ethical Consideration**

Ethical approval was sought from Masinde Muliro University of Science and Technology Institutional ethics and research committee, (MMUSTERC) , School of Graduate Studies (SGS), the approval numbers were MMU/COR 403012Vol 6 and

MMUST/IERC/009/2022. Permission to carry out this research was sought from the National Commission for Science and Technology NACOST, License No: NACOSTI/P/22/14942. And from Ministry of Health , where all facial entry protocols were observed from the County health officers of the earmarked facilities administrations.

The informed consents were sought, from all participating respondents and participation in the study was voluntary , and all participating respondents were free to withdraw at any time without penalty and loss of privileges , the principles of non maleficence and beneficence were adhered to. Anonymity and confidentiality were safeguarded . Confidentiality was ensured by avoiding writing names on the research tools, instead they were coded. Informed consent was sought verbally and by signing a consent form. All data collected was analyzed and reported in formats that did not allow participants identification.

During research, the information obtained from respondents is treated with confidentiality (autonomy), and privacy of the highest order at all stages of research, (data collection, data analysis, and reporting, etc.). Retrospective desk review form was mainly handled by the principal researcher, (Appendix VII). No names or identifiers of study subjects on medical records were reviewed by the public. Unique codes used. The study was flexible to allow any respondent to withdraw at any time. The interviews were based on voluntary participation and consent. Only respondents who consulted and recruited the respondents, not compensated for their participation in the study in western parts of Kenya.

### **3.11 Dissemination of Results**

Preliminary findings were presented in the 49<sup>th</sup> Kenya Medical Association Scientific Conference, on the third of June 2022, *Theme-Activating Health Systems Change, and To Improve Physician Wellbeing*. Initial results were also, shared with County referral health management teams, in western parts of Kenya. Presented in School of public health, biomedical sciences, and technology, Masinde muliro university of science and technology (MMUST), at the Departmental, school level, and school of postgraduate school, SGS, to improve its academic and scholarly qualities. Before inclined to MMUST Library for wider community health benefits. Published in 3 peer-reviewed journals of BJHMR - Vol. 9, No. 4, DOI:10.14738/ jbemi.94.12539 and Peer Reviewed Journal of Forensic & Genetic Sciences DOI: 10.32474/ PRJFGS.2022.04.000191 and Peer Reviewed Journal of Forensic &Genetic Science. DOI: 10.32474/ PRJFGS. 2023.04.000199.



## **CHAPTER FOUR**

### **RESULTS AND FINDINGS**

#### **4.0 Introduction**

This chapter contains demographic variables of the respondents' Characteristics of mainly selected 20 study facility mortuaries. The respondents' answers to various interviews and surveys ab each specific objective associated with the unceremoius mass grave disposal of the unclaimed corpses. It also contains a rapid retrospective desk review results, and findings, on the empirical impacts of congested and overstayed unclaimed corpses, (fetus, juvenile and adult cohorts), in cold storages of "cold hit" Investigations, and its effect on occupational health epidemics, medicolegal procedures, health laws, and health system factors, reviewed in the past 5 years ( 2017 – 2021). Using OSHA incidence books, police cases, and Mortuary registers from the 20 selected public facility mortuaries in western parts of Kenya.

##### **4.1.1. Characteristics of Study Facility Mortuaries**

The majority of the 20 facility mortuaries reviewed during the study, and most target populations, were accessed for data collection during the specific study period of three months evaluation. A total of 253 study populations of mortuary and forensic service providers participated in the study comprising 20 selected study facility mortuaries, with 1 (4.7%) being a level 6 facility mortuary, Moi Teaching and Referral Hospital (MTRH). 3 (14.3%), were level 5 facilities, Kakamega, Kisumu, and Kisii. While 17 (81%), were tier 3 and 4 facility mortuaries. Most of the facilities surveyed and interviewed 16 (80%), were located in rural settings. While the level 5 and 6 facilities, were physically located in the urban settings.

**Table 4.1: Health Facilities' Characteristics in the Study Area**

Level / Tier of Facility	Name of Facilities	County Headquarter	Frequency	Percentage
Level 6	MTRH	Eldoret	1	4.7
Level 5	Kakamega,PGH	Kakamega	3	14.3
	Kisumu PGH	Kisumu		
	Kisii PGH	Kisii		
	Kitale	Kitale		
	Bungoma	Bungoma		
	Kimili	Bungoma		
	Vihiga	Vihiga		
	Butere	Kakamega		
	Lumakanda	Kakamega		
	Iguhu	Kakamega		
Tiers, 3 & 4	Malava	Kakamega	17	81
	Kisumu county	Kisumu		
	Yala	Siaya		
	Siaya	Siaya		
	Migori	Migori		
	Rongo	Migori		
	Homabay	Homabay		
	Oyugis, Nyamira	Homabay Nyamira		
<b>Total</b>	<b>20</b>	<b>12</b>	<b>20</b>	<b>100</b>

Out of 259 respondents, only 253 met the inclusion criteria for the target population of the study, hence responded to survey questionnaire, and interviews using either, KIIs or FGDs, guides in a sample size of n=253. The result opined the response rate was 96.1 %.

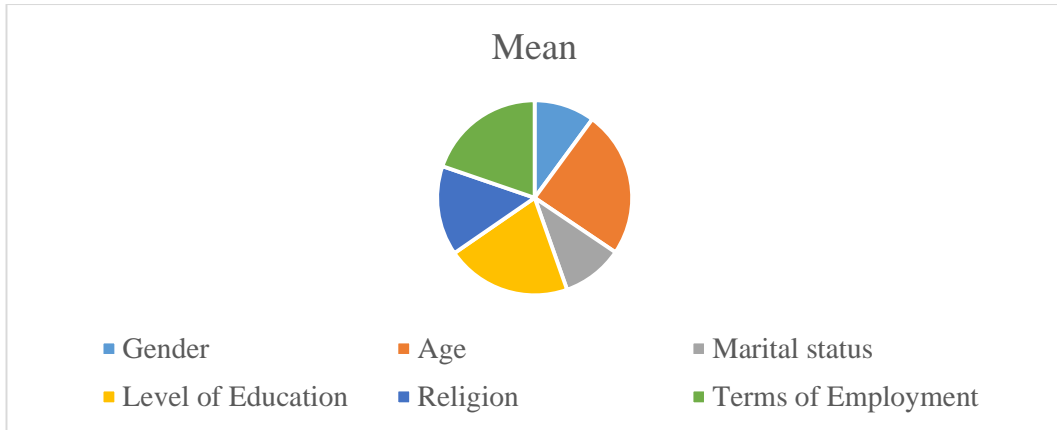
For every target population with valid inclusion criteria, were allowed for the survey and interviews, like all the unclaimed corpses, (fetuses, juveniles, and adults), acknowledged in the selected public mortuaries, by the national police services, for the past 5 years (2017 -2021), and 3 months of data collection were passive, retrospective,

desk reviewed, were captured in the retrospective desk review form, to achieve required data on the unclaimed corpses as a secondary study population.

Cluster purposive and active census of sampling techniques, through sampling frame of the mortuary and forensic staff registers, were used for the active data collection on occupational infectious infections, medicolegal, health law, and health system factors, attributed to the unceremonious mass grave disposal of unclaimed corpses by public mortuaries in western parts of Kenya.

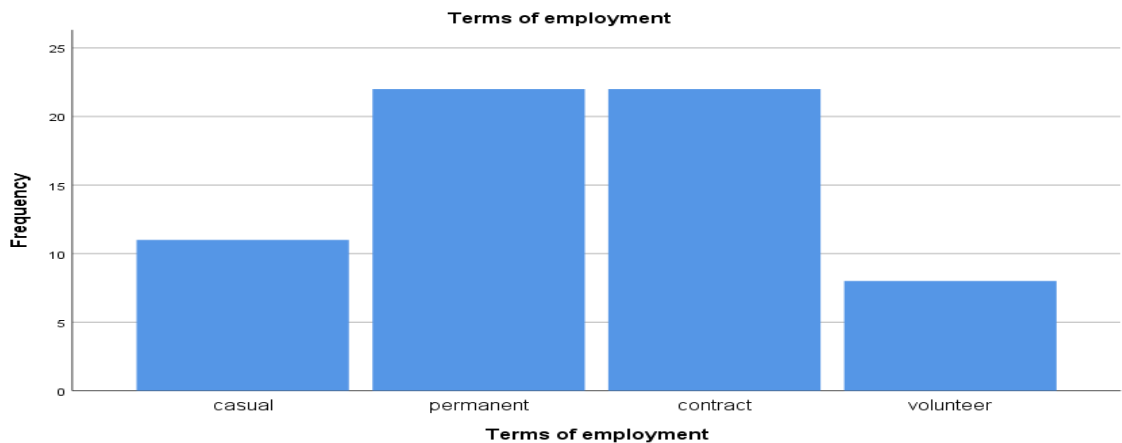
#### **4.1.1 Demographic Characteristics of Primary Study Population (Mortuary & Forensic Service Providers)**

Expert observation studies revealed that out of the 259 sample size of the study population proposed, only 253 mortuary and forensic service providers, met the inclusion criteria, as the primary target population, hence were all surveyed and interviewed. The majority 193 (76.2 %), were male and 60 (23.8%) female by gender, a social expression of a person's identity about social roles and behaviors in mortuary and forensic service provision, with descriptive frequencies means in figure 4.1 below. Though the female gender, was few in mortuary and forensic service provision, the majority had achieved a higher level of education compared to their male counterparts, with a standard deviation of 0.556 and confidence interval of 95% CI in mortuary and forensic professionalism, since male had achieved appropriate skills and technologies through in house training by their respective mentors.



**Figure 4.1: Characteristics means of the Study Respondents in the study area**

The study established, that about 83 (32.8%) of mortuary and forensic service providers, providing mortuary and forensic services in public mortuaries, work on permanent jobs, especially for females, 98 (38.9%) respondents work on contract, 41 (16.4%), of the respondents, are worked as casual workers, then 30 (11.9%), were volunteers. Signifying that the sustainability of employment programs, on mortuary and forensic service providers in the study area is greatly insignificant and confirmed in several FGDs and KIIs covered in the study area.



**Figure 4.2: Distribution of Terms of Service in Mortuary and Forensic Service Providers**

*‘‘Most public mortuaries in Kenya employ morticians on a contract basis, rather than permanent. The contract matters surely are hurting our hearts, demotivate us and make may lead jobless anytime.’’*, FGD discussion and triangulations with morticians in Kakamega and Kisumu County facility mortuaries on 14.03.2022 and 15.03.2022.

A majority, 181 (71.6%) of the respondents surveyed and interviewed, were married, and 72, (26.9%) were single. While 1 (1.5%) respondent was divorced. Also, their religious forms of worship and beliefs, remained the key determinants, as far as dignified disposal of previously unclaimed corpses and the autopsies procedures are concerned in western parts of Kenya, as tabulated Table 4.2 below:

**Table 4.2: Distribution of the *Religious* Cohorts among the Respondents**

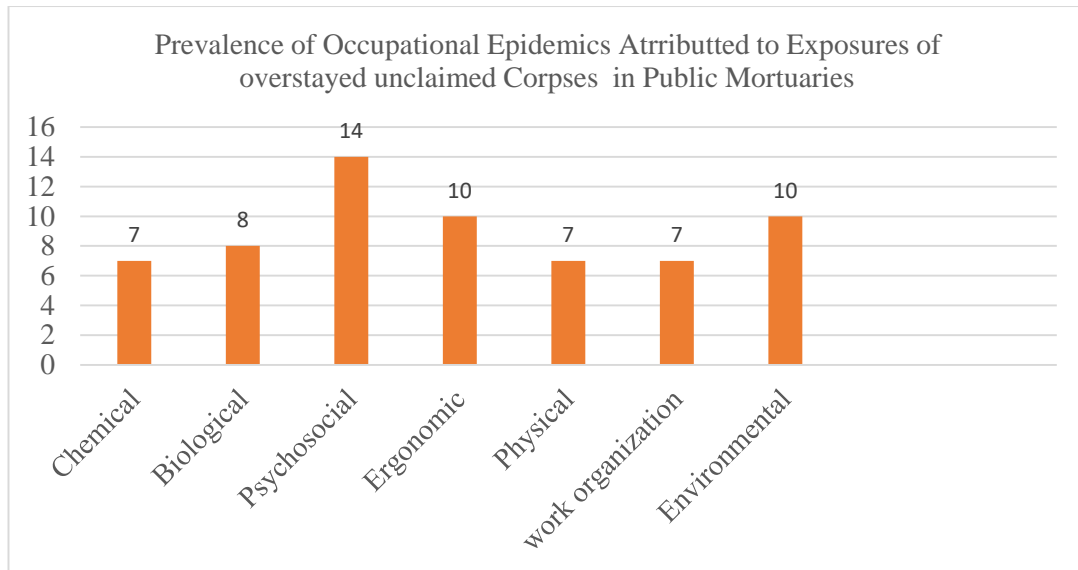
<b>Religion</b>	<b>Frequency</b>	<b>Valid Percentage</b>
Catholic	105	41,3
Protestants	120	47.6
Islamic	24	9.5
Hinduism	4	1.6
<b>Total</b>	<b>253</b>	<b>100</b>

Expert observational studies opined from the survey and interviews demonstrate, that, the synergistic roles played by Religious believers, Public health officers, National Police Services, and Residence Magistrates, remained the basic health system factors, for executing infection prevention control measures, on occupational health epidemics, medicolegal and Health laws, in public facilities to decrease unceremonious mass grave disposal of unclaimed corpses and advocates for dignified disposal in our society. Resident magistrates could write affidavits to reject autopsy dissection among Muslim believers. In, the Islamic region, they believe that, if a Muslim faith body is dissected, may not reach heaven. Hence, Muslim faiths habitually go for affidavits in courts to enable legal consent, justice, and accountability. So normally they goto vow

before the Resident magistrates, to circumvent autopsy dissections, as per their religious and cultural rites.

#### **4.1.2 Distribution of Propagated Occupational Epidemics in Public Mortuaries Attributed to Congestions and Overstayed Unclaimed Corpses**

The study opined that the main occupational health epidemics attributed to congestion and overstay of unclaimed corpses during the 90 days of cold storage of “cold hit” investigations, in public mortuaries were purely psychosocial hazards, with 56 (22%), respondents. Psychosocial hazards, affect mortuary and forensic service providers, to mutual social interactions with other community households. It often creates stigma in that, attributes, service providers with mortuary jobs of dead bodies, such as embalment, dressing, and performing autopsy dissections. The respondents were also affected by ergonomic hazards, with 41 (16%), causalities, due to the type of heavy physical work they perform on the dead. The prevalence probability OR of mortuary and forensic service providers, to be exposed to psychosocial hazards about biological hazards, that influence infectious infections with, RR (0.59, 1.70) with OR (0.58), P value 0.05.



**Figure 4.3: Prevalence occupational Epidemics, when Exposed to Unclaimed Corpses**

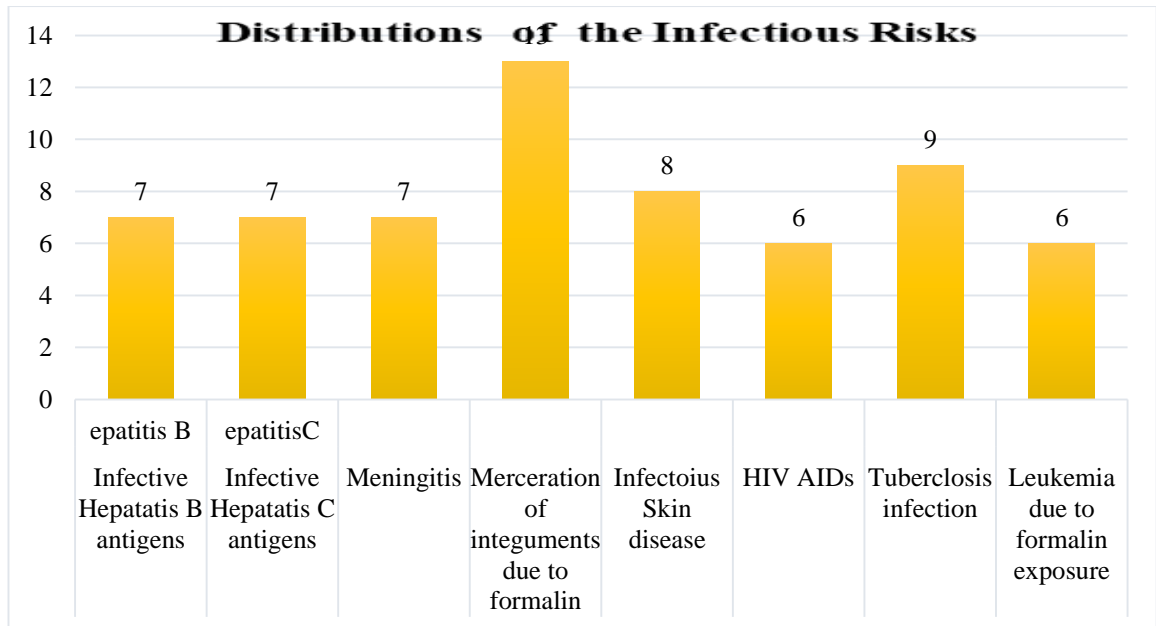
The magnitude of impacts of psychosocial hazards and their effect on the service providers was also clearly resonated in FGD discussions:

*“Darktari ukifanya kazikwa mortuary eeheh!utaitatwa under taker, mtu wa mortuary” (Doctor working in a mortuary as remains is a big challenge. The community, as mortuary workers or undertakers, always labels morticians. “Yule chamaa anafanya kazi ward 13” (that person works in mortuary) and dissects dead, for the case of health service providers or (undertaker), Hence habitual socializing with the rest of communities has morticians is a challenging life, out there”.* FGD discussion in Bungoma, Tier 4 facility, 29/2/22.

The results discoursed that, most unclaimed corpses are acknowledged in public mortuaries. Endure minimal potential source of occupational health epidemics, such as tuberculosis, Skin infection, HIV, and Hepatitis B & C. Majority, 71% (45), of respondents, had acquired knowledge, skills, and health awareness on the infection prevention control, measures on the occupational epidemics, such as Hepatitis B and C, cholera, tuberculosis, HIV, meningitis and skin infections. Besides, Leukemia was

closely attributed to long-term exposure to formaldehyde fluid, as opined in a series of interviews with Key informants in Kakamega, Kisumu level 5, and MTRH level 6 facilities. None of the respondents. Had actively acquired the infectious biological risks, attributed to long-term exposures to unclaimed corpses or previously unclaimed corpses in the past 5 years (2017 – 2021) and the 3 months of data collection in the western parts of Kenya. The study opined that integument maceration, attributed to formalin exposures, by respondents was the most potential risk of infections with 13 (21%) of them having been affected in the past 5 years and 3 months of data collection, still, was mostly attributed to the single uptake of the disposal gloves as, Nonpharmaceutical intervention, (NPIs), during embalment. Probability of mortuary and forensic service providers being attacked by tuberculosis infections, during the autopsy of the unclaimed corpse from infective lungs was RR, (0.75, 0.31) .and OR, 0.30 with p value 0.0453). Signifying existing, protective interventions for the population's health. However, an autopsy could be a major source of TB infection, if dissectionis performed without proper knowledge of pathologists. Otherwise, granulomas of the lungs are prominent during the dissection of the infective lung. Hence often fixed by the pathologists in 10% formalin for at least 14 days, before any subsequent dissection, to advocate for quality, infection prevention control, and measures against any gross infection demonstrated in figure 4.4 below.

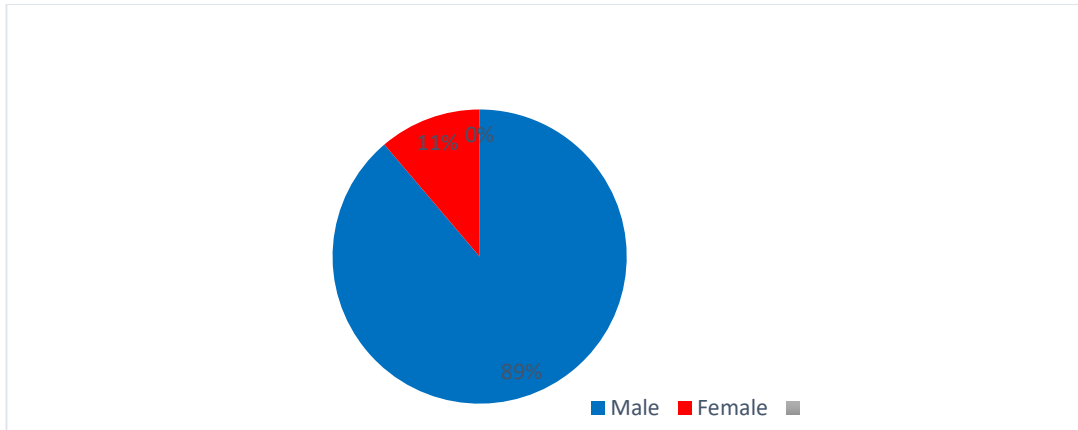




**Figure 4.4: Basic Epidemic Risks Exposed Mortuary and Forensic Service Providers**

#### **4.2.1 Distribution of Unclaimed and Previously Unclaimed Corpses in Public Mortuaries in Past 5 Years and 3 Months of Data Collection**

The study opined that from the 20 selected Public mortuary facilities in western parts of Kenya for study, the national police services admitted, an accumulative of 3030, both unclaimed and previously unclaimed corpses of (Fetus, juvenile and adult cohorts), in the last 5 years and 3 months of data collection were used. Figure 4.5 below demonstrates the total the adult unclaimed and previously unclaimed corpses acknowledged by sex, in Public mortuaries were, 2688 (89%) male and 342 (11%), female unclaimed corpses (2017 -2021), figures included 3 months periods of the data collection. In agreement with most interviews and discussion held agreed that it's rare for the female sex to fall prey to unclaimed corpses since they always remained in homes to care for the family, and becomes unclaimed corpse is rarely collected by the respective NOK for a dignified burial.



**Figure 4.5: Distribution of Adult unclaimed corpses admitted in public mortuaries from (2017 -2021) and 3 months of data collection by gender**

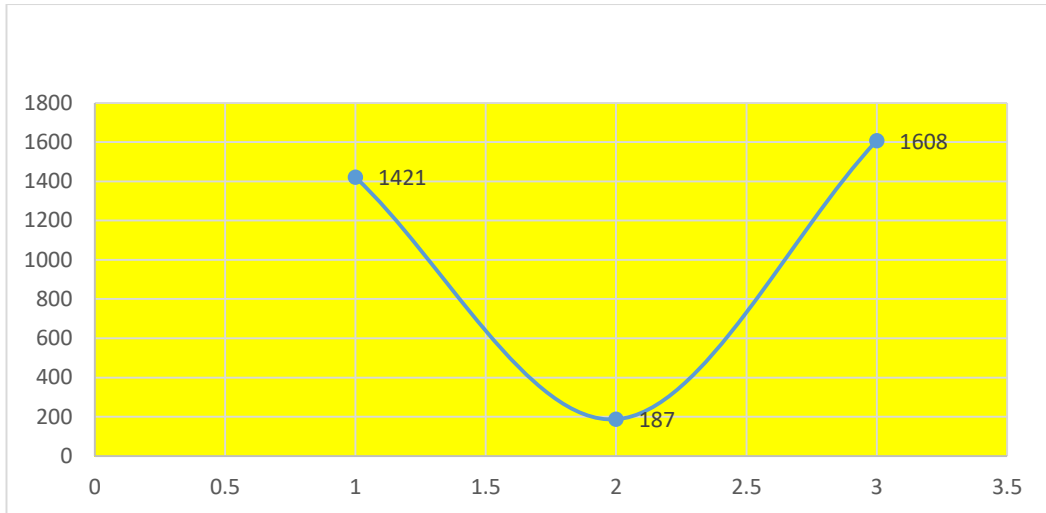
The law neglected minor cohorts, (fetus and Juvenile), unclaimed corpses acknowledged in public mortuaries in the past 5 years, were 878, of which, 740 (85%) were fetuses, and 138, (15%) were juvenile cohorts.

The highest mortuary admittance by next of kin was observed in MTRH with total unclaimed corpses of 728 bodies due to its referral roles and accessibility of reliable human resources and capitals. The facility with the highest accumulation of unceremonious mass grave disposal of adult corpses was detected in Kitale mortuary facility in Trans nziua County, due to its wide coverage with neighboring Counties. Besides marked rural- rural migrations, and being inhabitants of diverse and multiethnic community households, withendured inadequate and tilted uptake of medico-legal procedures, as echoed in FGDs discussions below.

*“Hapa Kitale Baro, karibu miaka 8 hivi nikifanyakazi, Sijawaiona Police akijukuwa fingerprints kwa maiti. Lakini huwa wanaleta kwa mortuary wakisema ni unknowns, karibu kila week mwili moja, amambilina sana,sana huwa ni wanaume ”Here in Kitale , Barasa, for almost 8 years of my job, I have never seen a national police services carry out finger print abstractions on unclaimed corpses that they often acknowledged. However, they habitually, acknowledge once or twice per week, and mostly are male unknowns. FGD discussion, in Kitale Tier 4 facility on 17/3/2022.*

However, the least facility for unclaimed corpse admittance was Kimilili, with only 45 unclaimed & previously unclaimed corpses, for the past 5 years with a marked brought in death, (BID), then fatal accidents, as main manners of death. The range of the admitted unclaimed corpses from (2017 -2021) and 3 months of data collection was 432 unclaimed corpses in the whole western Kenya.

The survey further discovered that, out of 3,030 acknowledged unclaimed and previously unclaimed corpses, 1608, (41%) unclaimed corpses, were strictly identified by of the Next of Kin (NOK) or good Samaritans, and not the National police services, as per their jurisdictions of which, 1421 (88%) were males, and 187 (12%), Females. Demonstrated in figure 4.6 below



**Figure 4.6 Demonstrate total number of previously Adult unclaimed corpses equivalent to death certificate issued to mediate ceremonial disposal (burial or cremation)**

In total, the survey and interviews revealed that only 1608 autopsies were dissected, on previously unclaimed corpses, in the past 5 years plus 3 months of data collection. Signifying that only 1608 death notifications, were notified to the government, as per the Birth and death registration Act CAP 149. Therefore, in 1608 previously unclaimed corpses were disposed of in dignified ways of religious and various cultural approaches.

Additionally, the study confirmed that, in the last 5 years and 3 months of data collection. 1422 adult unclaimed corpses were disposed of in public cemeteries through, improper, unceremonious mass grave disposal. (Unclaimed corpses had strapped on the forehead, written “*unknown Corpse Date of death*”, and lacked aluminum tags on appendages. lacked earmarked shallow furrow mass graveyards of less than 6 feet excavated, to enable future exhumation), as per public health Act CAP 242, section 146.

Letdown of national police service to implement quality medico-legal procedures, on 90 days of “cold storage of “cold hit” investigation of the unclaimed corpses, as per the national police Act 2011, section 55, Coroner Act 2017, and criminal code CAP 65 § 75 of Kenya was on a constant increase. The continuous letdown by police services causes PHOs and resident magistrates, to apply health laws governing medicolegal procedures. Thus, they wrote affidavits and Court orders, to consent, human, remains for justice and accountability, (Appendices xiv & xv). After PHOs notify the population health via public notices of the facility's intentions to carry out mass grave disposal in public cemeteries, after 21 days of the notice (Appendix XX), as per Local Government Act CAP 265 section 201, they habitually implement, unceremonious mass grave disposal unclaimed corpses into public cemeteries.

The total number of 878 (fetus and juvenile) unclaimed corpses, were mass graved and remained branded, as “the law neglected cohorts,” since the independence, with RR (1.0, 1.0) OR (1.0), signifying, they had no attributions linked to infectious infections and uptake of medicolegal procedures. However, they closely attributed the propagated occupational health epidemics. Hence only gathered the affidavits and court orders, to enable consent, justice, and accountability of human remains, like the adult counterparts. The forensic services of the fetus and juvenile or minors unclaimed corpses. Remain neglected, as per standards medico-legal framework of enactment, to enable dignified disposal. Thus infringement of the Bill of Rights Chapter 4 and Part 2: clauses 26 and 27, on rights to live and live from conceptions (Mutethia, 2020; Greasley & Kaczor, 2018). In Kenya, the current practice is that fetuses' and juveniles' fingerprints and biometrics are not readily available. As such, medicolegal practitioners, have marginal options, to offer proper disposal of unclaimed corpses outside the obtained court orders for mass grave disposal.

*“Identification of unclaimed corpses is the most difficult and resource-intensive task, but the government has not yet invested in it strongly. Mortuary and Forensic service providers may feel comfortable from an ethical perspective working to uphold human rights and investigating violations of international humanitarian law and human rights, but this should include the family’s right to learn the fate of deceased relatives. The work of forensic specialists is necessary to ensure not only that legal justice is done, for accountability of human remains. But also that the best is done for the families in the shortest time possible, in forensic identification and search for NOK to enable DAN appraisals, of the unclaimed corpses, as soon as acknowledged in public mortuary.”* KII briefings in MTRH on 07/03/2022.

**Table 4.3: A summary of the total Numbers of unclaimed Corpses (Fetus, Juvenile and Adult Cohorts), Unceremoniously Mass Grave Disposal Using Court Orders Approvals for the Last 5 years, (2017 to 2021) and 3 Months of Data collection**

S/n	Facility	Fetus & Juvenile Cohort		Adult Male	Adult Female	Total Mass graved
		Fetus	Children			
1	Kisumu level 5	25	10	126	11	<b>172</b>
2	Migori tier 4	21	9	58	14	<b>102</b>
3	MTRH level 6	189	30	160	14	<b>393</b>
4	Kakamega level 5	19	11	43	13	<b>86</b>
5	Kitale tier 4	45	10	220	42	<b>317</b>
6	Nyamira Tier 4	20	12	43	5	<b>80</b>
7	Bungoma tier 4	11	9	45	3	<b>68</b>
8	Webuye tier 4	00	00	00	00	<b>00</b>
9	Rongo Tier 4	13	3	44	7	<b>67</b>
10	Homa bay Tier 4	30	7	64	7	<b>108</b>
11	Kisii level 5	44	10	132	13	<b>199</b>
12	Butere tier 4	35	4	31	3	<b>73</b>
13	Vihiga tier 4	34	5	41	3	<b>83</b>
14	Kimilili tier 4	34	4	29	3	<b>70</b>
15	Lumakanda tier 4	34	5	31	1	<b>71</b>
16	Kisumu tier 4	35	4	45	4	<b>88</b>
17	Uasingishu tier 4	35	5	34	3	<b>77</b>
18	Yala tier 4	34	5	42	3	<b>84</b>
19	Iguhu tier 4	35	4	28	2	<b>69</b>
20	Siaya tier 4	34	4	46	7	<b>91</b>
	<b>Total</b>	<b>727</b>	<b>151</b>	<b>1260</b>	<b>158</b>	<b>3030</b>

**Table 4.4: Distribution of Adult Unclaimed and Previously Unclaimed Corpses Admitted in 20 Selected Public Mortuaries from (2017-2021) and 3 months of Data collection**

S/N	Name of Facility	Male Identified by (NOK)	Female Identified by (NOK)	Male mass graved	Female mass graved	Total	Manner of Death	Nature of Death	Finger Print Abstracts.& DNA Appraisal
1	Kisumu level 5	102	16	126	11	<b>255</b>	RTA, mob justice, arson	unnatural	2.0
2	Siaya tier 4	100	6	46	7	<b>159</b>	RTA, Drowning	unnatural	00
3	MTRH level 6	256	38	160	14	<b>468</b>	RTA, Drowning, abortion	unnatural	00
4	Kakamega level 5	127	17	43	13	<b>200</b>	RTA, Drowning	unnatural	00
5	Kisii tier 4	135	29	132	13	<b>309</b>	RTA, murder drowning	unnatural	00
6	Nyamira Tier 4	25	7	43	5	<b>80</b>	RTA, murder	unnatural	00
7	Migori Tier 4	69	1	58	14	<b>142</b>	RTA, murder	unnatural	00
8	Webuye	00	00	00	00	<b>00</b>	00	00	00
9	Rongo tier 4	25	6	44	7	<b>82</b>	RTA, murder	unnatural	00
10	Homa Bay Tier 4	61	4	64	7	<b>136</b>	RTA, murder	unnatural	00
11	Kitale tier	128	27	179	31	<b>365</b>	RTA, murder mob justice. drowning	unnatural	00
12	Butere tier 4	48	2	31	3	<b>84</b>	RTA, murder	-	-00
13	Bungoma tier 4	51	3	45	3	<b>102</b>	RTA, Drowning, abortion	-	-00
14	Kimilili tier4	12	1	29	3	<b>45</b>	RTA, murder mob justice. drowning	-	-00
15	Iguhu	17	2	28	2	<b>49</b>	RTA, murder mob justice. drowning		00

16	lumakan da	39	3	31	1	<b>74</b>	RTA, murder mob justice.	00
17	Yala tier 4	56	4	42	3	<b>105</b>	RTA, murder mob justice.	00
18	Oyugis tier 3	50	10	41	11	<b>112</b>	drowning RTA, Drownin g,	
19	Kisumu tier 4	34	5	45	4	<b>88</b>	abortion RTA, murder mob justice.	00
20	Uasingis hu tier 4	42	3	34	3	<b>82</b>	drowning RTA, murder mob justice.	00
21	Vihiga tier 4	39	3	41	3	<b>86</b>	drowning RTA, murder mob justice.	00
	<b>Total</b>	<b>1421</b>	<b>187</b>	<b>1262</b>	<b>158</b>	<b>3028</b>	drowning	<b>02</b>

**Key** Identified by NOK, means that corpses were later identified and processed for dignified disposal by their respective family members. Mass graved means that, the corpses were not identified during the periods of cold hit, and thus processed through the unceremonious mass grave disposal.

#### 4.2.2 Determinants of Law Neglected Minor Cohorts in Unclaimed Corpses

Expert observation studies and national police that, out of the 878 minors (juvenile and fetus), 740 (85%), cases were first attributed to the fetus cohort, who were closely attributed with, induced abortion of the unplanned pregnancies, and abandonment in public toilets, forests or thick bushes by unprepared families upbrings and caring by married or single parents. An indication of inadequate, accessibility of reliable health promotions on reproductive health services family planning methods and sex abstinence among the population health, thus, marked lost spirited glories, of quality African traditions, on qualities of the sanctity of life on their productive health values



and virtues, among the growing reproductive cohorts. Again, 138 cases, (15%) were children of unclaimed Juvenile cohort, (table 4.5), reviewed in the past 5 years, manner of death attributed to affected children were mainly, murder and abandonment in the public forest or thick bushes.

**Table 4.5: The Established Law Neglected Minor Cohorts of Unclaimed Corpses**

S/n	Facility	Fetus	Manner of death	Juvenile	Manner of Death	Nature of Dead	Total
1	Kisumu level 5	41	Abortion	06	Murder	Unnatural	<b>47</b>
2	Siaya tier 4	30	Abortion	07	Murder	Unnatural	<b>37</b>
3	MTRH level 6	189	Abortion	27	Murder	Unnatural Natural	<b>216</b>
4	Kakamega level 5	49	Abortion	13	Murder	Unnatural	<b>62</b>
5	Kitale level tier 4	40	Abortion	8	Murder	Unnatural	<b>48</b>
6	Nyamira tier	31	Abortion	12	Murder	Unnatural	<b>43</b>
7	Migori	21	Abortion	6	Murder	Unnatural	<b>27</b>
8	Webuye	000	0000	00000	0000000	00000000	<b>00000</b>
9	Rongo 4	18	Abortion	5	Murder	Unnatural	<b>23</b>
10	Homa bay 5	32	Abortion	4	Murder	Unnatural	<b>36</b>
11	Kisii level 5	57	Abortion	5	Murder	Unnatural	<b>62</b>
12	Buete tier 4	25	Abortion	4	Murder	Unnatural	<b>29</b>
13	Vihiga tier 4	34	Abortion	5	Murder	Unnatural	<b>39</b>
14	Bungoma tier 4	23	Abortion	9	Murder	Unnatural	<b>32</b>
15	Kimilili	21	Abortion	4	Murder	Unnatural	<b>25</b>
16	Iguhu	19	Abortion	3	Murder	Unnatural	<b>22</b>
17	Uasingishu	30	Abortion	7	Murder	Unnatural	<b>37</b>
18	Kisumu tier 4	31	Abortion	2	Murder	Unnatural	<b>34</b>
19	Yala tier 3	39	Abortion	5	Murder	Unnatural	<b>44</b>
20	Oyugis tier 3	10		4	murder	Unnatural	<b>14</b>
21	Lumanda tier 4	00	00	00	<b>00</b>	00	<b>00</b>
	<b>Total</b>	<b>740</b>		<b>138</b>	<b>00</b>	<b>00</b>	<b>878</b>

Forensic expert observational studies, also established that the national police services in western parts of Kenya, have scarce and tilted uptake of functional quality medicolegal procedures, for the (minors) fetus and juvenile unclaimed corpses acknowledged in public mortuaries, since the independence. Therefore, the timely need for the Government to construct a Combined DNA database index system (CODIS), to enable the holistic collection of DNA from western parts of Kenya in partnership with other developed donor countries, in the Kenya Bureau of statistics, for future accessible and reliable forensic service provision.

#### **4.2.3 Uptake of Latent Finger Prints Abstraction and DNA Appraisals as Health System Factor**

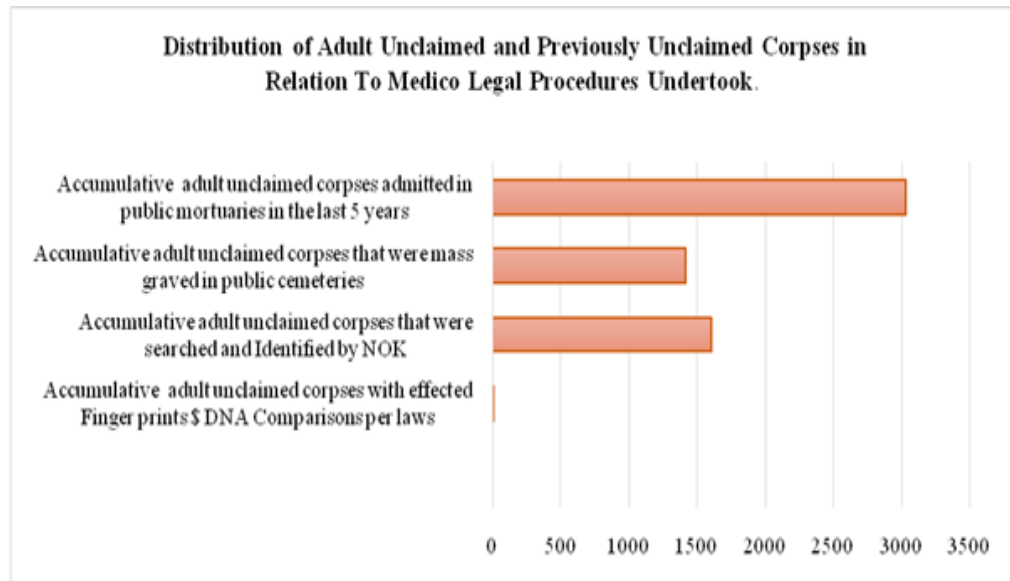
The study opined that society has a systematic chronic failure of the national police services, to advocate for quality uptake of medicolegal procedures, beginning from the diagnostic triangle, to secure evidence on unclaimed corpses, before criminal trials at the autopsy dissections. Hence resulted concealing of forensic fingerprint identification evidence. By amputating the wrist hands of crime offenders, they drowning into large rivers (Appendix X), to conceal evidence of forensic identifications.

The study also established that, out of 3030 adult unclaimed or previously unclaimed corpses acknowledged, by the national police services, in the past 5 years and 3 months of data collection in the study area. Only 2 (0.051%) adult unclaimed corpses. were utilized as per obligatory quality medicolegal procedures, to enable the dignified disposal of the previously unclaimed corpses, (Appendix XV, XVI, and XVII), from the outskirts, Kisumu due to arson with relative RR (0.007, 3.45), OR ( 3.1), 95% CI of the unclaimed corpses identifications in western parts of Kenya. The study opined

that most, 1603 (53%), adult unclaimed or previously unclaimed corpses, were identified by good Samaritans or NOK. However, 1420, (46%) adult unclaimed corpses, were never identified by NOK, thus utilized unceremoniously mass grave disposal together with the law-neglected cohorts (fetus and juvenile),(Appendices XX, XIV, XIII). majority of mass-graved corpses from their respective facilities.

Out of 3030 unclaimed corpses in public mortuaries majority, 2560, (84%) of expert observation studies in the whole study area, demonstrate that they were not tagged with rust-proof aluminum tags, to enable accessible and reliable future exhumation and process mitochondria DNA appraisals from osteology residues, when needs of forensic evaluations could arise. Limited uptake of medicolegal procedure can be confirmed by the persistent low uptake of aluminum tags, with only 15.5% (470) physical labeling of unclaimed corpses using aluminum tags on the appendages in the whole western parts of Kenya. As opined also in the FGDs discussed below

*“Here in Kitale level 5, for the last 5 years, we have never used the aluminum tags but usually use the hospital white strapping, which is put on the frontal head as a label and that is all, FGDs held in Kitale, Kisumu, Kisii. Bungoma and Vihiga, March, 2022.*



**Figure: 4.7: Distribution of Adult Unclaimed and Previously Unclaimed Corpses about the Uptake of MedicoLegal Procedures, (2017- 2021), and 3 months of data collection**

*“Here in Kisumu level 5, in the last 5 years, we have had only 2 cases of fingerprint identification and DNA appraisal, that were correctly implemented by the national police services from Kisumu police station, with a case attributed to arsons of 2 females burnt beyond recognition., ’KII informant interview held in Kisumu on 15/03/2022.*

*“Doctor in all public mortuaries where I have worked before, have not seen any National Police services, take fingerprint abstractions, to initiate medico-legal procedures, as per penal code CAP75. national police Act 2011, and national coroner act 2017, unless the NOK request and initiate the process by giving him transport and a small motivation fee to enable the smooth fingerprint procedures to be carried out)” FGD discussions on 09/03/2022 in Homa Bay, tier 4 Facility mortuary.*

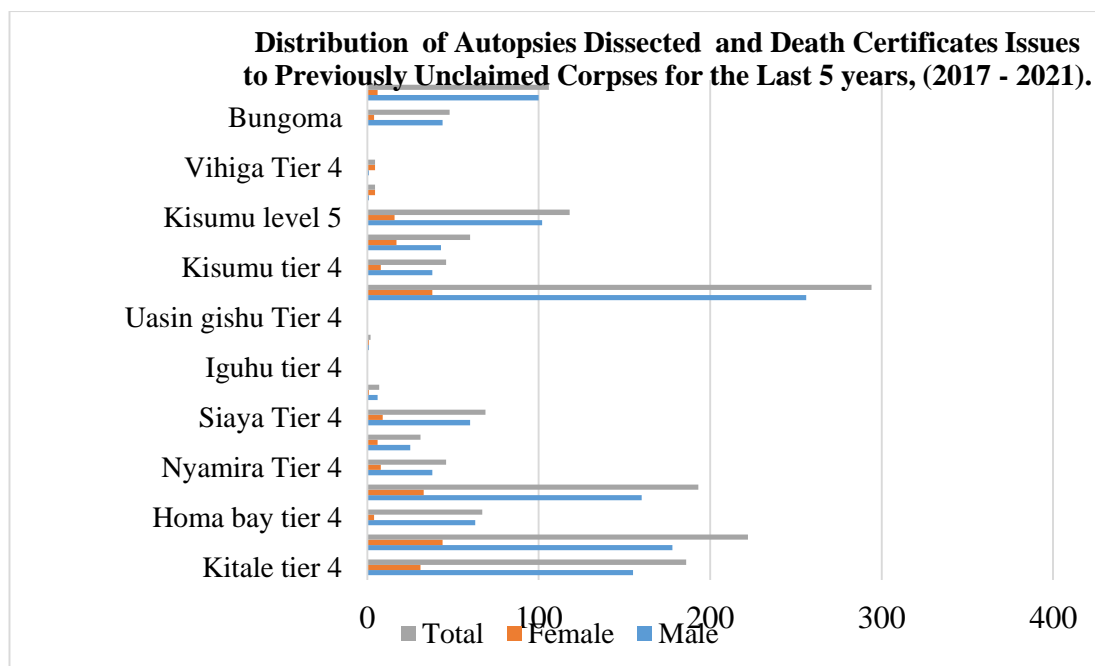
In addition, the study established that, despite MTRH being in synergistic partnership with County criminal investigation officer, for prompt latent fingerprint abstractions, to enable search and track for the NOK to carry out DNA appraisals. However, since 2020, their partnership with the national police service, on forensic identification, has not borne any forensic service fruits for the facility. Because inquest police service, come as per the unit command agreement with their seniors, to take latent print abstractions, as agreed in a joined meeting. Then, MTRH never received any positive outcome of traced and found unclaimed corpses.

*“Here in MTRH we have partnership with the national police services for the last 2 years. However, NO single traced fingerprint result received so far. Hence, all unclaimed corpses were allocated a special cold container, after the expiry of three months of investigation;our morticians transfer them there. Autopsied dissected here, are mainly associated with, BID, murder homicide, and suicide, which NOK habitually, facilitates the opening of inquest files and DNA appraisals, to enable autopsy, for dignified disposal rather than unceremonious mass grave disposal’*. KII briefing in MTRH on 21/2 /2022.

The study established that, out of 1829 autopsies dissected on previously unclaimed corpses in the past 5 years, 1590, (90%) were male and 239 (10%), were female of the previously unclaimed corpses, with an odd ratio of female gender at risk of dissection being insignificant than male gender with RR (7.1, 0.068), OR (1.0) for female autopsy dissection to enable dignified disposals.

The majority of autopsy dissections made, on previously unclaimed corpses in public mortuaries, were mainly attributed to numerous search efforts and physical identifications made by NOK in collaboration with good Samaritans and NGOs such as red cross and IMLU. Rather than the National police services utilizing the secured

network, 1-24/7 signal 7 and 8 and digital platforms of Interpol yellow view notices uploaded to restricted population health for search, at a central point, in the Department of forensic science (Appendix XIX). The national police service came only to open files for autopsy. Then later, called by respective mortuary superintendents, to close the inquest files, to enable PHOs, to implement the public health Act CAP 242 laws and the local government authority Act, CAP 265 section 201. Therefore, consent for human remains, as Human anatomy Act CAP 249, to enable unceremonious mass grave disposal (Appendix XIII, XVI).



**Figure 4.8:Autopsies Prepared on Previously Unclaimed Corpses by Gender**

Distribution of autopsies dissected on previously unclaimed corpses, performed, to ascertain the cause and nature of deaths, and notify the government, as per CAP 149 of the Birth and death registration Act. Dissections, greatly influenced by the community social capital, and the NOK search in most of the public mortuaries in the study region, to mediate DNA appraisals and autopsies (Appendix XV, XVI & XVII). Henceforth, decreased uptake of the health laws governing medico-legal procedures

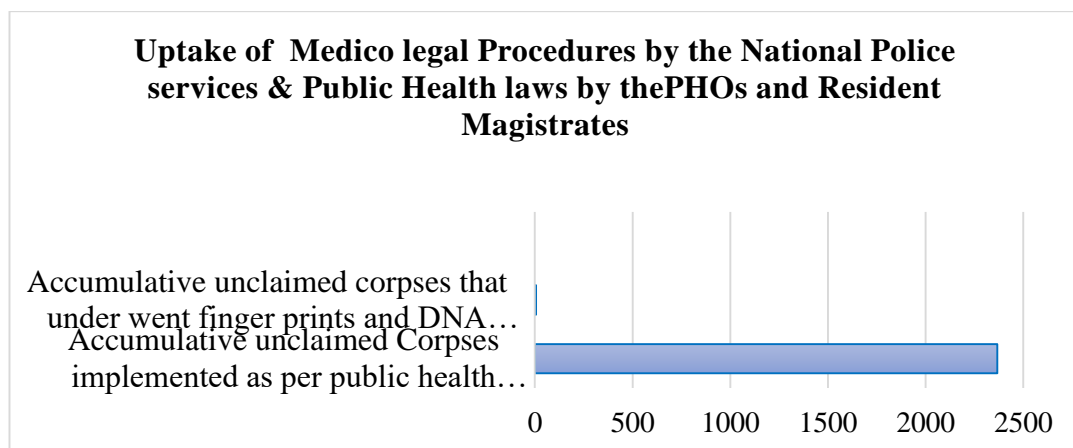
by the PHOs and resident magistrates. Thus promoted dignified disposal and decreased unceremonious mass, grave disposal by the public mortuaries in western parts of Kenya.

The study opined that the affidavits and court orders, (Appendix XIII, XVI, and XX), remain the key Legally binding consents, as per Human Anatomy Act, Cap 249 and Human Tissue Act CAP 252, to enable the utilization of unclaimed corpses. Local Government Act CAP 265 section 201, allows county authorities to provide cemeteries for mass disposal.

#### **4.3.1 Roles of National Police Services, Public Health Officers, and Resident Magistrates, as Basic Health System Factors of Unceremonious Mass Grave Disposal of Unclaimed Corpses**

Uptake of medical-legal procedures in the Kenyan health system, well postulated in criminal penal code CAP 63 and 75, National police service Act 2011 section (55), and in National Coroner Act, 2017. That it is the responsibility of the national police services, to facilitate the entire process of medicolegal procedure, right from the diagnostic triangle (Dead scene and witness), to the trials of the unclaimed corpses at the Autopsy and in courts. Yet, the continued letdown of national police services from western parts of Kenya. To initiate finger printing abstractions, DNA appraisals, and upload view Interpol yellow notices to population health to search and contact (NOK), or use the police secured network 1-24/7 signal 7 to pass information to the County administrations, on the where about of the deceased. These, have caused public health officers and Resident magistrates to promptly apply health laws on the congested and overstayed unclaimed corpses, acknowledged in public mortuaries, after the expiry, 90 days on cold storage of “cold hit” investigations, as a primary prevention measure

against the health population. Through the provision of the legal consents on justice and accountabilities of the human remains, with the issue of affidavits and court orders. Furthermore, the results from various surveys, interviews, like Figure 4. 9 below. Opined that, out of 3030 unclaimed corpses (fetus, juvenile and adult cohorts), acknowledged in public mortuaries by the national police services, in the past 5 years of retrospective rapid desk review, only 2 (0.051%) unclaimed corpses were identified and their DNA appraisals then autopsy dissected, as per the required standard medico-legal procedures, from Kisumu level 5 facility . Hence, the two previous unclaimed corpses were disposed of in dignified method, as per the specific religious and cultural rites, with existing RR (0.007, 3.450) (OR 1.0). Hence the rest unclaimed corpse was unceremonious mass grave in the nearest public cemeteries, using affidavits and court orders issued by PHOs and resident magistrates of the study region.



**Figure 4.9:** Uptake of MedicoLegal Procedures by the National Police Services and health Laws by PHOs and Resident Magistrates achieved in the last 5 years and 3 months of Data Collection

Protracted tilted and inadequate uptake, of medico-legal procedures by the national police services, are attributed with long-term lack of morale and motivations impressions uptakes, from main stakeholders for their well-done job on past medico-



legal procedures performed, as per Maslow law theory of motivations and moral rewards, to detected mortuary and forensic service providers.

However, the uptake of health laws by PHOs in public facilities remained significant, with a P value of 0.053 CI 95%. Signifying the continued quality empowerment and sustainability of occupational health epidemics, infection prevention control, and measures in the health population. Observation on the inadequate and tilted uptake of medico-legal procedures, also, came up clearly in numerous series of KIIs and FGDs. with active follow-up in triangulation discussions:

*“Here Kisumu level 5, the national police services did, fingerprint abstractions and searched NOK for DNA appraisals only on two suspected females, arsons, burnt in one room beyond recognition, so it forced the national police services, to implement fingerprint identification and DNA appraisal. This was the only case where, all medico-legal procedures were implemented to the letter by the national police services, for the last 8 years, that I have worked in this mortuary”. KII briefing in Kisumu level 5, Mortuary on. 18/2/2022*

*“In MTRH we have partnership with the national police services for the last 2 years. However, NO single traced fingerprint result received so far. Hence, all unclaimed corpses were allocated a special cold container after the expiry of three months on investigation transferred there by our morticians. Autopsied dissected here, are mainly associated with, BID, murder homicide, and suicide, whom NOK habitually, facilitates the opening of inquest files and DNA appraisals, to enable autopsy, for dignified disposal rather than unceremonious mass grave disposal”. KII briefing in MTRH on 21/2 /2022.*

#### **4.3.2 Prevalence Autopsies Dissected on Previously Unclaimed Corpses from (2017- 2021) and 3 Months of Data Collection in Western Parts of Kenya**

Distribution of the prevalence in a number of autopsies dissected, in the past 5 years and during 3 months of data collection, was determined by their manner, cause, and nature of death that occurred, in the presence or absence of the NOK and good Samaritans. NOK or good Samaritans influenced various forms of social capital tactics, to enable forensic identification of unclaimed corpses to mediate DNA appraisals.

Some community households sought psy dissections, while others sought davits vows, before the Resident magistrates, to be exempted themm from autopsy dissections. Since the unclaimed corpse religious and cultural practices, prohibit autopsy dissection. Hence, they sougthed legal consents for justice and accountability of their deceased, toadvocate for dignified disposal of their previously unclaimed corpses.

**Table 4.6:Prevalence of Autopsies Achieved on Previously Unclaimed Corpses in Public Facility Mortuaries from, (2017 -2022) and in 3 Months of Data Collection BN**

S/ N	Facility	Male Autopsy	Female Autops y	Total	Manner of Dead	Nature of Death
1	Kisumu level 5	102	16	118	BID RTA, mob justice-induced abortion, abandonment in public toilets or bushes suicide, homicide murder	Natural/ Unnatural
2	Migori tier 4	100	06	106	RTA, BID, strangulation, suicide, homicide murder, induced abortion, abandonment in public toilets or bushes	Unnatural/ Natural
3	MTRH level 6	256	38	294	BID, RTA, mob justice suicide, homicide murder	Unnatural /Natural
4	Kakame ga level 5	43	17	60	RTA, mob justice suicide, homicide murder BID	Unnatural
5	Kitale tier 4	155	31	186	RTA Suicide, homicide, BID, induced abortion, abandonment in public toilets or bushes Murder	Unnatural
6	Nyamira Tier 4	38	08	46	RTA, strangulation, suicide, homicide murder	Unnatural Natural
7	Migori	64	01	65	induced abortion, abandonment in public toilets or bushes Murder	Unnatural

8	Oyugis tier 3	354	72	366	BID. RTA, shooting, strangulation, suicide, homicide murder, induced abortion, abandonment in public toilets or bushes	Unnatural/ Natural
9	Rongo Tier 4	25	06	31	RTA, mob justice suicide, homicide murder, induced abortion, abandonment in public toilets or bushes	Unnatural
10	Homa Bay Tier 4	55	04	59	RTA, suicide, homicide murder, induced abortion, abandonment in public toilets or bushes	Unnatural
11	Kisii level 5	178	44	222	RTA, drowning, mob justice, murder, BID-induced abortion, abandonment in public toilets or bushes,	Unnatural/ natural
12	Butere Tier 4	40	4	-	RTA, drowning, mob justice, murder, BID-induced abortion, abandonment in public toilets or bushes, -	Unnatural/ natural
13	Lumakanda Tier 4	39	5	-	- RTA, drowning, mob justice, murder, BID, induced abortion, abandonment in public toilets or bushes	- Unnatural/ natural
14	Igukhu Tier 4	30	3	-	- RTA, drowning, mob justice, murder, BID, induced abortion, abandonment in public toilets or bushes	- Unnatural/ natural
15	Bungoma Tier 4	50	9		RTA, drowning, mob justice, murder, BID-induced abortion, abandonment in public toilets or bushes,	Unnatural/ natural
11	Yala Tier 4	51	10		RTA, drowning, mob justice, murder, BID, induced abortion, abandonment in public toilets or bushes in	Unnatural/ natural
17	Kisumu Tier 4	40	9		RTA, drowning, mob justice, murder, BID, induced abortion, abandonment in public toilets or bushes	Unnatural/ natural

18	Kimilili Tier 4	21	2	RTA, drowning, mob justice, murder, BID-induced abortion, abandonment in public toilets or bushes,	Unnatural/natural
19	Uasingis hu Tier 4	39	10	RTA, drowning, mob justice, murder, BID, induced abortion, abandonment in public toilets or bushes	Unnatural/natural
20	Vihiga Tier 4	40	8	RTA, drowning, mob justice, murder, BID-induced abortion, abandonment in public toilets or bushes	Unnatural/natural
<b>Total</b>		<b>1421</b>	<b>187</b>	<b>1608</b>	

<b>Key</b>	<b>Natural</b>	God plans dead such as old age, chronic diseases, and conditions,
	<b>Unnatural</b>	Man and woman plans dead such RTA, murders of homicides or suicides, minors, and fetus abandonment in public toilets or pushes and abortion in college toilets or pushes.

The reality of improper unceremonious mass grave disposal in the study area was confirmed by a deficiency in the excavation of shallow furrow graveyards of less than 6 feet, deficiency of aluminum tags and metals labels on appendages of the unclaimed corpses, and earmarked mass graveyards with the year of mortuary registers. As a future sampling frame in the public cemeteries, to enable accessible and efficient exhumation, as per Public Health Act CAP 242 section 146.

*“Doctor in all public mortuaries that I have worked mass disposal means that all unclaimed corpses are buried in only one deep excavated hole in public cemeteries which id the filled by excavators )”* FGD discussions on 09/03/2022 in Homa Bay, tier 4 Facility mortuary.

The study opined that a total of 1422 (47%), unclaimed corpses were unceremoniously mass grave disposed of, using court orders, and were mostly attributed with manners of, fatal road traffic accidents, drowning in large waters, murder, abandonment in the public forests, bushes or public toilets. The court orders and affidavits approval, endured main legal consents for justice accountability, as per Human Anatomy Act Cap 249 and Human Tissue Act CAP 252, to enable therapy and cadavers, uptakes, and distinct medical education tools. While 53% (1608), of previously unclaimed corpses were given death certificates after autopsy and handed over to the NOK for dignified burials, as per specific cultures and religious rites.

#### **4.4 Professionalization of Mortuary and Forensic Services, as Health System**

##### **Factors of Medico Legal Procedures and Behaviors Change of KAP**

The study established that, after the declaration of the 2010 constitution in Kenya, the national government failed to magnify the Department of forensic pathology into a synergistically integrated Department of Forensic Science. Consisting of core forensic disciplines, which are under one command management, to mediate comprehensive and holistic forensic services in public mortuaries. The core discipline of forensic professionalization included forensic fingerprint identification (Appendix XVIII), and tracking of unclaimed persons NOK, using Interpol yellow notices, (appendix xix), forensic pathology, forensic anthropology, and forensic odontology. Forensic laboratory medicine, forensic entomology, forensic radiology, photography, Molecular biology, and Mortuary science. And this contravenes Article 4 Part 4 of the 2010 Constitution Bill of Rights, (The state shall not discriminate directly or indirectly, against any person on any ground, including race, sex, pregnancy, marital status, health status, ethnic or social origin, color, age, disability, religion, conscience, belief,

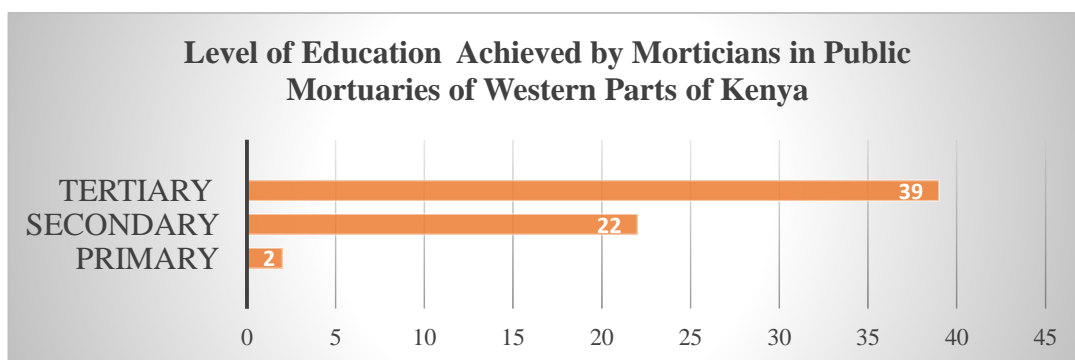
culture, dress, language or birth). The study also revealed that the professionalism of all mortuary services to work in tandem with the application of quality forensic services, in the study region, remained inadequate and tilted, as the main health system factor of target achievement. In addition, most pathologists equipped with the appropriate skills and knowledge of forensic services, rarely perform autopsy dissections, as specified in numerous triangulations of KIIs discussions;

*“After the devolution of the Health sector to county government, Governors stated categorically that, we were posted to county governments to perform, Histopathological clinical services, and not forensic services, so facilities delegated forensic services to medical doctors, who do most autopsies, unless is a special case. In addition, County governments introduced payment of autopsy fees direct to hospital accounts. Meaning, if you have to travel to present your medical findings before a legal justice one has to use your means to travel to court, which is impossible. Sometimes you may travel several times to courts to present medical findings before a court y trial, which is costly to that specific pathologist. So first key issue is that the National government should constitute an integrated functional forensic science department, and provide cash to that forensic science department at all selected county levels, which will even enable the national police services, to travel and do forensic fingers. As per the national police, service Act, 2022, section 55. Pathologists cannot use money from their pocket to offer government forensic services’’. KIIs in autonomy & triangulations with several pathologists in the study region, in February and March 2022.*

#### **4.5 Capacity Building in Mortuary and Forensic Service Providers in Forensic Medicine, as Health System Factor to Reduce Unceremonious Mass Grave Disposal**

The research discovered that most 13 (65%) respondents of the selected 20 public mortuary facilities surveyed in western parts of Kenya have an insufficient number of trained personnel to offer forensic services, as a key determinant of health system factor, on the professionalization of forensic services. The majority, 39 (62%), respondents surveyed and interviewed specifically morticians, completed mortuary science courses, and 22 (33%) complete their secondary education. while 2 (3%) respondents completed only primary education. But most female morticians employed

in the 20 selected public mortuaries, had achieved certain specific levels of professionals in forensic service and had acquired certificates, compared to male counterparts, with attributable academic risks of RR (0.35-0.75), OR (0.63)



**Figure 4.10: Defines, the Levels of Education and Training Achieved by the Respondents, as the Health System Factor in mortuary and Forensic Service Provision**

This study also established that although the majority of Public Health Officers, (PHOs). 11 out of 14, (85%), respondents from 21 selected facility mortuaries, surveyed and interviewed, had quality appropriate knowledge, skills, and practices, in the uptake of CAP 242 of Public Health Act, and CAP 265 of Local Authority Act, as valued with the increasing unceremonious mass grave disposal of unclaimed corpses in public cemeteries. The study of various Key informant interviews opined that the PHOs have candid tilted and inadequate, capacity building and empowerment in the uptake of medico-legal procedures, as per the Human Anatomy Act, CAP 249, Human Tissue Act CAP 252, and criminal penal code 65 § 75, National police Act 211 section, 55, Coroner Act, 2017, and Birth and Death Notification Act CAP 149. Thus resulting in a great deficiency in the sustainability of the dignified disposal of previously unclaimed corpses from the studied facilities. As noted in several KIIs and FGDs discussed in the study area.

*“The only two laws which most PHOs are aware of, and are in utilization, are Public Act Cap 242 and Local Government Act, Cap 265 section 201 on bylaws for public cemeteries. Application of medico-legal procedures, and how they affect the unclaimed corpses, during 90 days of cold storage of “cold hit” of investigation by the police services, from public mortuaries. As PHOs we are not aware of them, since we did not learn them in colleges or universities,” KII briefing and triangulation of the KAP of PHOs on the uptake of medico-legal procedures, as the health system factors, Bungoma Tier 4 and Kisumu, level 5 facility on 29/02/2022, 07/3/2022*

The Study established that there is a need for the government of Kenya. To advocate for accessible and reliable health and forensic awareness forums, to enhance capacity building on quality health & forensic Knowledge, Attitude, and Practices, (KAPs). Among mortuary and forensic service providers, on propagated, occupational health epidemics, medico-legal procedures, Health laws, and health system factors. As the key synergistic, variable integrator to sustain quality forensic services, through informed health promotions, which will enhance dignified disposal of the previously unclaimed corpses in the society.

*“I observed like the Knowledge Attitude and Practices on medico-legal procedures and health laws are subjects opened only to pathologists, National Police, and Public health officers respectively. Therefore, there is a need to create capacity building, in Health & forensic educational forums. To medical officers, mortuary, and forensic service providers, on comprehensive and holistic integration of public health and forensic services. Under a single command management, to sustain the medico-legal and health laws uptake for community benefits, on dignified disposal. Unlike the persistent unceremonious mass grave disposal being implemented currently, by most facilities that, I have worked in the study region”. KII briefing with medical officer in Kakamega PHG, on 18/2/2022.*



#### **4.6 Effect of Quality Behavioral KAP of Mortuary and Forensic Service Providers in the Uptake of Infection Prevention Control of occupational Epidemics, Medicolegal Procedures, and Health laws Applications**

Several interviews and survey findings on the effect of quality KAP on the mortuary and forensic service providers, uptake on infection prevention control of the occupational epidemics. Medicolegal procedures, and health laws, as basic health system factors, to decrease unceremonious mass grave disposal, by public mortuaries in the study are endure inadequate, tilted, and not equitable to the whole health care system. Due to the deficiency of an existing single department of forensics department with the synergistic partnership of the core disciplines of forensic medicine, as established by the Likert scale rating on quality KAP as the key human resource influencer of both mortuary and forensic service providers to provide the quality services, through surveys and interviews, as tabulated below.

**Table 4.7: Dispersals on Effect of quality Behavioral KAPof Mortuary and Forensic Service Providers to Influence Unceremonious Mass Grave Disposal of Unclaimed Corpse, using Likert Scale 5 Ratings Model**

VARIABLE	KNOWLEDGE		ATTITUDE		PRACTICES	
Health System Factors	Medico legal procedures	Health Laws	Medico legal procedures	Health Laws	Medico legal procedures	Health Laws
Forensic pathologists Score of 5	Very Good 5	Good 4	Good 4	Fair 4	Good 4	Fair 3
Medical officer Score of 5	Fair 3	Good 5	Good 3	Fair 4	Good 2	Good 5
National Police services Score of 5	Good 4	Bad 3	Very Bad 2	Good 3	Very Bad 2	Good 4
Public health Officers (PHOs) Score of 5	Fair 2	Very good 5	Fair 3	Very good 5	Very poor 2	Very good 4
Morticians, Score of 5	Fair 3	Fair 3	Good 4	Good 4	Very Good 5	Fair 3
Forensic technologists Score of 5	Good 4	Good 4	Very Good 5	Good 4	Very good 5	Fair 3
Coroners, Score of 5	Good 4	Good 4	Very good 5	Very Good 5	Very Good 5	Good 4
Mortuary Superintendents Score of 5	Good 4	Good 4	Bad 4	Good 4	Good 4	Good 4
Next of Kin (NOK) Score of 5	Bad 2	Bad 2	Good 3	Good 3	Good 3	Bad 2
Health record officer Score of 5	Bad 2	Bad 2	Good 3	Good 3	Good 3	Good 3

## CHAPTER FIVE

### DISCUSSION OF THE RESULTS AND FINDINGS

#### 5.0 Introduction

This chapter presents this study's inferences on the results and findings presented for the primary and study populations and the study for the past 5 years (2017 – 2021) besides the 3 months of data collection on the secondary study population using retrospective and prospective sampling techniques of the cohort design on unclaimed corpses. The primary study population, purposive cluster sampling and census techniques are exploited using cross-sectional descriptive designs, to equate them with previous studies done by other authors and scholars, globally regionally and ideally as enacted in the 2010 constitution of Kenya .

#### 5.1. Determining Main Occupational Health Epidemic Risks Attributed to Unceremonious Mass Grave Disposal

Management and maintenance of quality infection prevention controls measures, in congested and overstayed unclaimed corpses in cold storage of “cold hit” investigation span, in the public mortuaries, remains basics of constant sustainability of primary prevention of any given community health, and in agreement with studies by, (Pham *et al.*, 2020, Rasskazova *et al.*, 2016). But this study's findings demonstrate that health epidemics have been built on inappropriate beliefs and legends that, that are characterize major sources of biological epidemic hazards, which are in line with (Okoth-Okelloh *et al.*, 2015; Kassie *et al.*, 2018). Which, from the expert observations, interviews and surveys carried out, to confirm their existence. The study discovered that occupational health epidemics remain a negligible source of virulence among most of the population health working in public mortuaries in western parts of Kenya,

which is in agreement with the studies by (Sodhiet *al.*, 2013;M. Silali, 2021). The key findings also established that mortuary and forensic service providers, were most exposed to psychosocial hazards, ergonomic and formalin maceration of integuments risks, thus in line with studies by (Ahmed, 2011; Okoth-Okelloh *et al.*, 2015). Due to the single uptake of gloves, as non-pharmaceutical intervention during embalmment, which is in agreement with studies by; Correia *et al.*, 2014; Beck, 1966). The majority 62%, (157) of respondents had no any infective contagious mortuary infections, such as, TB, skin infections, and Hepatitis B or C. As proposed by the study, due to proper existing infection prevention controls measures, being utilized by mortuary and forensic service providers in the 20 selected mortuary facilities is in line with a study, (Pham *et al.*, 2020; Advisory Committee, 2003; Bedoya *et al.*, 2017;Iliyasu *et al.*, 2016) on roles of quality uptake of NPIs to improve primary prevention among mortuary and forensic service providers. Still in this study, the deficiency of propagated occupational health epidemics in western parts of Kenya are in line with study by, (De Goyet, 1999; Noji, 2000 Bedoya *et al.*, 2017). Who said that handling over stayed and crowded unclaimed corpses waiting for unceremonious mass grave disposal? Candidly, presents the lowest health hazards and infectious risks of epidemics to exposed mortuary and forensic service providers and visiting population health mortuary, like NOK, seeking forensic services, from the unclaimed corpses lying in cold storage on 90 days of “cold hit” investigations, (Illes& Wilson, 2020; Castro & Coyle, 2013).

## **5.2 Uptake of Medico-Legal Procedures and Health Laws as Main Health System Factors Attributed to Unceremonious Mass Grave Disposal of Unclaimed Corpses**

The experts' observational studies in western parts of Kenya, opined that application of the basics forensics by the national police services, such as secured networks, 1-24 /7 police signal 7, 8, and Interpol yellow notices to enable fingerprint identification and forensic identifications or accessibility, of the NOK, endured inadequate and tilted uptake, as noted with the increased unceremonious mass grave disposal of unclaimed corpses, by the public mortuaries. These, endurance, is in contradictions, with the missions of the criminal penal code CAP 63 and 75, National Coroner Act, 2017 and National Police Service, Act 2011 section (55) of the Kenya constitution, (Mutethia, 2020, ;Silving, 1974).

The application, of medico legal procedures, at the National, County governments in the western parts of Kenya remain limited, as per the standard medico legal frame works in the CAP 63 and 75 of penal Codes and Police service Act 2011 section 55 in Kenya, (Mutethia, 2020, ;Silving, 1974), endured persistence is also antagonistic to the position of UK parliamentary joint committee on Human rights, for deaths in the custody by (Trolley, 2009; A dvisory Committee, 2003). Which emphasizes on need of NOK, or family participation in the deceased prerequisites, as mandatory requirements to be involved in the police services inquest on the unclaimed corpses, as essentially to safeguard the legitimate interests of the unclaimed corpses and NOK. Also inadequate uptake of 1-24 /7 police signal 7, 8 and the Interpol yellow view notices, to mediate forensic identification and DNA appraisals, is contrary to the roles of the National police Act 2011 section 55, and misaligned processes of relaying and forensic data information to the NOK, (Castro & Coyle, 2013; Risinger *et al.*, 2002),

about unclaimed corpses in public mortuaries to the population health, globally, regionally and in the study area. The persistent let-down of the national police services to implement quality medico-legal procedures, as per the criminal code of Kenya CAP 63 § 75 and National Coroner, Act 2017, endures also the infringement of Chapter 4 of the Kenyan constitution on bill of rights to life from conception. This also subverts the efforts to prevent and respond to human remains, torture, and discrimination, (Watermeyer *et al.*, 2019.; Mutethia, 2020; Greasley & Kaczor, 2018; Cordner *et al.*, 1999).

Letdown of NOK to be synergistically involved in forensic services, violates the roles of Interpol view yellow notices, for the accessibility search, of unclaimed corpses photos to be uploaded in secured forensic centers of the selected 20 facilities, connected to the central department of forensic science, as demonstrated by studies by (Pham *et al.*, 2020; Hess *et al.*, 2014; Paripurna *et al.*, 2018), (Reedy, 2020; Abiodun & Abioro, 2014; Paripurna *et al.*, 2018).

The study, similarly, revealed that the marked unceremonious mass grave disposal of unclaimed corpses in public cemeteries is attributed to the habitual application of the health laws governing medico-legal procedures. The PHOs and Resident magistrates, which is in agreement with (Mutethia, 2020; Iliyasu *et al.*, 2016; Amoran & Onwube, 2013), on the candid failure of the National police services, to implement the basic forensics for medico-legal procedures in 90 days of cold storage of “cold hit” investigations. This is in contradiction with a study by, (Olu, 2017; Tolley, 2009; Mutethia, 2020). The rights of the human remains, be inspected during autopsy dissection and put proper conceptual framework works of forensic services, to enable

dignified disposal of the previously unclaimed corpses, as per the specific religious and cultural rites.

### **5.3 Determining Health Systems Factors Attributed to Unceremonious Mass Grave Disposal of Unclaimed Corpses in Public Cemeteries**

The extent, of resolving inadequate and tilted forensic services in Kenya, is the main health system factor. Needs quality data information from the core disciplines of forensic professionalization, in a synergistic partnership of single command management. This is in line with studies by, (Chen et al., 2004; Pham *et al.*, 2020), on the infrastructural and social amenities developments, replenishment of the essential reagents and mortuary drugs, to enable quality infection prevention control on occupational health epidemics, forensic search, and identification of unclaimed corpses, acknowledged in public mortuaries. The study established that there are no proper inventions in the survival mechanisms, put in place to sustain Interpol yellow view notices in the selected 20 study facility mortuaries. Even with the current evolution of digital platforms of modern information communication technology (ICT). This is contrary to UN Inter-Agency Standing Committee (MacFarlane and Khong, 2006; Olu, 2017). On protecting persons affected by Natural Disasters, states that, the recovery of unclaimed corpses from the public mortuary, is aimed at promoting future forensic identification of the deceased and proper search of the NOK, by utilizing modern ICT gadgets, to enable dignified disposal of previously unclaimed corpses. Therefore, decrease, the systematic improper unceremonious mass grave noted in the study region.

The law forgotten cohorts, (fetus and juvenile), of the unclaimed corpses, were 788 (23%) of the unclaimed corpses, which were improperly, unceremoniously mass buried in public cemeteries in the past 5 years, as per public health Act CAP 242 and local government, Act CAP 265 section, 201. Mainstream fetus cases were, attributed to induced abortions, which is in contradiction of Chapter Four of the 2010 constitution on Bill of rights part 2 clauses 26 and 27 and the rights to candid abortion rights, (Greasley &Kaczor, 2018; Mutethia, 2020), as the basic health system factors. Which state that, human beings' Have the right to life, from the time of conception, and abortion in Kenya is allowed when the mother's life is in high danger.

The study also established the uptake of medico-legal procedures, as per the penal code CAP 63 and 75, National Coroner Act, 2017, and National police service Act 2017 section 55. Which form basic health system factors, of medico-legal procedures, were candidly applied in Kisumu level 5 facility, with only 2 (0.051.0%) unclaimed corpses, out of 2,160 adults acknowledged in the past 5 years. They underwent quality forensic identification, using fingerprint abstractions and DNA appraisals by the national police services, to enable dignified disposal of previously unclaimed corpses, as per the specific religious and cultural rites. The little uptakes of medico-legal procedures, as a health system factor contravene the missions of the established, CAP 63 and 75 of the criminal code and national police Act, 2011 section (55). This study also, confirmed that the application of forensic services by the national police services in society is insignificant. Therefore, its in contradictions with the Penal Code of Puerto Rico in the constitutional legislation, (Silving, 1974), on crimes against the respect of the dead, and crimes against the family's rights to health information through, the Interpol Yellow notices, (Reedy, 2020). The study is also rebelliously, to the Kenyan Penal Code CAP



63 § 75 section 285 -388, which requires that, for all unclaimed corpses or missing persons, the national police service perform a full crime inquest, as per medico-legal frameworks, Mutethia, (2020).

#### **5.4 Establishing Mortuary and Forensic Service Providers' Quality**

##### **Behavioral Knowledge, Attitude, and Practices to Influence**

##### **Unceremonious Mass Grave Disposal**

The catastrophe of the Ministry of Health (MOH), on KAP to expand the Department of forensic pathology into an integrated Department of forensic sciences that consist of several forensic disciplines: Forensic fingerprint identification, forensic pathology, forensic anthropology, and forensic odontology. Forensic laboratory medicine, forensic entomology, forensic radiology, photography, molecular biology, and mortuary science, mainly attributed, to the current tilted and inadequate uptake of forensic services and healthcare. Which endure inhibiting accessible equitable, comprehensive, and holistic forensic professionalization uptake, across all public mortuaries in western Kenya, and this is conflicting with the studies by, (MacFarlane and Khong, 2006) on vibrant roles of integrated core forensic disciplines, to form forensic science departments, efficiently support forensic services, under one command management. From the descriptive cross-sectional, observational surveys, recognized that most public mortuary facilities, have an inadequate number of professional human resources, trained in forensic science. To provide quality forensic services to the health population. A majority, for instance, 74%, (187) of mortuary and forensic service providers surveyed and interviewed, did not complete their various levels of professional to allow them to provide quality mortuary and forensic services respectively. But, most female morticians employed had credentials, of capacity

building mortuary science and had secured permanent jobs. of popular morticians, 80%, have inadequate knowledge,of basic science subjects such as biology, chemistry, and physics, which form the pillars of forensic science and embalmment courses, which is in line with a study by, (Chen *et al.*, 2004; Rowe *et al.*, 2005), on human resources for health and overcoming calamities, in the low settings of health care

## CHAPTER SIX

### SUMMARY, CONCLUSION, AND RECOMMENDATION

#### 6.0 Summary

This study was proposed to determine occupational epidemics, medico-legal procedures, health laws, and Health system factors attributed to unceremonious mass grave disposal of unclaimed corpses by public mortuaries in Western parts of Kenya. The results, first show that, there are no occupational epidemics attributed to exposures to the unclaimed corpses-congested and overstayed in public mortuaries, within the 90 days of cold storage of “cold hit”of forensic investigations. Therefore, population health should stop propagating occupational epidemics to the health population. Secondly, uptake of quality medico-legal procedures in western parts of Kenya is scarce and skewed with only 2 (0.051%) out of 3030 adult unclaimed corpses admitted in public mortuaries in the last 5 years plus the 3 months of collection, were forensically determined, through a retrospective rapid desk review of the mortuary records. Thirdly, the uptake of health laws governing medico-legal frame workers, by the PHOs and Resident magistrates, is significantly positive, as noted by the increased unceremonious mass grave disposal of unclaimed corpses by the public mortuaries. Fourth, uptake of health system factors ensures, inadequate and tilted utilizations, like synergistic integration of core disciplines of forensics, into a single department of forensic science, under one command management. Professionalization of mortuary and forensic services. Habitual replenishment of the reagents and drugs, embalmment of previously unclaimed corpses, and quality uptake of medico-legal procedures by the national police services. Lastly, the general effect on behavioral KAP of mortuary and forensic service providers. On occupational epidemics, medico-legal procedures,

health laws, and Health system factors attributed to unceremonious mass grave disposal of unclaimed corpses by public mortuaries in western parts of Kenya, are determined by individual jurisdiction of each cluster of mortuary and forensic service providers' specialty towards forensic service provision. They are not holistic and comprehensive in forensic services.

The study also concludes that the society should stop propagate occupational health epidemics attributed to the exposures, to overstayed and congested unclaimed corpses, since they are a deficiency of infectious diseases to the population's health. Medico-legal procedures and health system factors uptake are inadequate and tilted. While the uptake of health laws is significant in the society. Therefore, there is a timely need for integrated public-private partnerships in the construction of ultra modern DNA plants, in the Kenya Bureau of Statistics. To enable accessible DNA appraisals and also unmet forensic identification of the law neglected cohorts besides need for policy amendments, to decrease improper unceremonious mass grave disposal of unclaimed corpses in public cemeteries. In addition, impress dignified disposal of previously unclaimed corpses, as per the religious and cultural rites of western parts of Kenya.

## **6.1 Conclusion**

- i. There are no occupational epidemics, exposed to mortuary and forensic service providers, like the visiting population health attributed to overstayed and congested unclaimed corpses in public mortuaries in western parts of Kenya.
- ii. Ministry of health, has a markedly scarce and skewed uptake of medico-legal procedures since independence. Thus, there is a need to improve the uptake of medico-legal procedures, by the national police services of western parts of Kenya to decrease unceremonious mass grave disposal of unclaimed corpses.

Since it is inadequate and tilted, as per Kenyan criminal penal code CAP 63 and 75. National Police Act, 2011 section (55) and National Coroner Act, 2017.

- iii. There is marked inadequate synergistic integration of the core disciplines of forensic medicine into a single Department of forensic sciences, running under one command management, in Sector Wide Approach, SWAP, to enhance infection prevention control measures. Against occupational health epidemics, increased of medico-legal procedures uptake. Decrease the uptake of health laws governing medico-legal procedures.
- iv. There is restricted provision of comprehensive and holistic professionalization of mortuary and forensic services and habitual replenishment of reagents and drugs in public mortuaries endures inadequate and tilted utilization, by mortuary and forensic service providers, as the main health system factors attributed, to unceremonious mass grave disposal of unclaimed corpses in western parts of Kenya.
- v. Simply request the MOH to integrate capacity training on the varying core disciplines of forensic sciences with appropriate skills inline with KAPs of mortuary and forensic service providers which may have attributed to the current improper, unceremonious mass disposal of unclaimed corpses in public cemeteries.

## **6.2 Recommendations**

- i. The study therefore, strongly recommends MOH to investment more in Health promotion and awareness of the existing propagated occupational epidemics and create trust in infection prevention control measures applied in mortuary premises, as continuous Primary Prevention in health care.

- ii. Need for GOK to form a synergistic Private Public Partnership, (PPP) in the construction of ultra-modern DNA plant, at the Kenya Bureau of Statistics (KBS), to mediate accessible and efficient unclaimed DNA appraisals, on the law neglected minor cohorts (fetus and juvenile), and improve on DNA uptake in adult population health which is, interlinks, between National and County forensic centers. Like Interpol yellow view notices, to enable accessible forensic identification and DNA appraisals, after successful searching of unclaimed corpses of uploaded photos for the NOK to access and enhance dignified disposal, of previously unclaimed corpses. In addition, ultra-modern DNA plants at KBS, will mediate development of a society with high standards of African acceptable virtue morals, psychosocial and reproductive health virtues, build on quality sanctity of life.
- iii. Need GOK to constitute, an accessible Department of forensic sciences and Not the current forensic pathology, with transgenerational control on the core disciplines of forensic medicine, to mediate holistic and comprehensive mortuary and forensic services in healthcare.
- iv. Recommend, on further research, on why the Government of Kenya has taken a span of life to establish, the candid medico-legal procedures and Acts in the constitution to govern, the law neglected minor cohorts (fetus and juvenile) of the unclaimed corpses. Since, it violates Chapter 4 of the Bill right to life, right from conception in Kenya.

## REFERENCES

- Abbas, A. K., Hefny, A. F., & Abu-Zidan, F. M. (2011). Seatbelts and road traffic collision injuries. *World Journal of Emergency Surgery*, 6(1), 1–6.
- Abdulraheem, I. S., Amodu, M. O., Saka, M. J., Bolarinwa, O. A., & Uthman, M. M. B. (2012). Knowledge, awareness and compliance with standard precautions among health workers in north eastern Nigeria.
- Abiodun, T. F., & Abioro, T. (2014). Roles and Challenges of International Criminal Police Organization (Interpol) In Investigation Of Crimes And Maintenance Of Global Security.
- Advisory Committee. (2003). The Prevention of Infection in the Mortuary and Post Mortem Room. Health Services Advisory Committee.
- Agha, M. (2012). Epidemiology and pathogenesis of *C. difficile* and MRSA in the light of current NHS control policies: A policy review. *Annals of Medicine and Surgery*, 1, 39–43.
- Ahmed, H. O. (2011). Preliminary study: Formaldehyde exposure in laboratories of Sharjah university in UAE. *Indian Journal of Occupational and Environmental Medicine*, 15(1), 33.
- Amoran, O. E., & Onwube, O. O. (2013). Infection control and practice of standard precautions among healthcare workers in northern Nigeria. *Journal of Global Infectious Diseases*, 5(4), 156.
- Apima, M. B., & Kandiri, J. (2019). The role of mobile phone tracking technology in crime prevention in Kenya: a case of Nairobi city county.
- Ashbaugh, D. R. (1999). Quantitative-qualitative friction ridge analysis: An introduction to basic and advanced ridgeology. CRC press.
- Bajracharya, S., & Magar, A. (2006). Embalming: An art of preserving human body. *Kathmandu University Medical Journal (KUMJ)*, 4(4), 554–557.
- Beavan, C. (2001). *Fingerprints: The Origins of Crime Detections and the Murder Case That Launched Forensic Science*. Hyperion Books.
- Beck, J. B. (1966). Arterial embalming fluid and method for embalming therewith. Google Patents.
- Bedoya, G., Dolinger, A., Rogo, K., Mwaura, N., Wafula, F., Coarasa, J., Goicoechea, A., & Das, J. (2017). Observations of infection prevention and control practices in primary health care, Kenya. *Bulletin of the World Health Organization*, 95(7), 503.

- Bhullar, D. S., & Kaur, M. (2015). Medico-Legal Care for Female Victims of Sexual Violence. *Journal of Punjab Academy of Forensic Medicine & Toxicology*, 15(2).
- Brenner, E. (2014). Human body preservation—old and new techniques. *Journal of Anatomy*, 224(3), 316–344.
- Castro, D. M., & Coyle, H. M. (2013). Biological Evidence Collection and Forensic Blood Identification. Forensic Science Department Henry C Lee College of Criminal Justice & Forensic Science University of New Haven, 300.
- Chen, L., Evans, T., Anand, S., Boufford, J. I., Brown, H., Chowdhury, M., Cueto, M., Dare, L., Dussault, G., & Elzinga, G. (2004). Human resources for health: Overcoming the crisis. *The Lancet*, 364(9449), 1984–1990.
- Clarkson, T. W., Friberg, L., Nordberg, G. F., & Sager, P. R. (2012). Biological monitoring of toxic metals. Springer Science & Business Media.
- Cocco, P. L. (2002). Levy BS, Wegman DH. Occupational Health. Recognizing and preventing work-related disease and injury.
- Cole, S. A. (2004). Grandfathering evidence: Fingerprint admissibility rulings from Jennings to Llera Plaza and back again. *Am. Crim. L. Rev.*, 41, 1189.
- Cordner, S., Wells, D., Mckelvie, H., Nageh, M. M., & Linehan, B. (1999). Ethical practice in laboratory medicine and forensic pathology. Report No.: Series, 20, 66.
- Correia, J. C., Steyl, J. L., & De Villiers, H. C. (2014). Assessing the survival of Mycobacterium tuberculosis in unembalmed and embalmed human remains. *Clinical Anatomy*, 27(3), 304–307.
- Cox, J. A., Lukande, R. L., Kateregga, A., Mayanja-Kizza, H., Manabe, Y. C., & Colebunders, R. (2011). Autopsy acceptance rate and reasons for decline in Mulago Hospital, Kampala, Uganda. *Tropical Medicine & International Health*, 16(8), 1015–1018.
- deGoyet, C. de V. (1999). Stop propagating disaster myths. *Prehospital and Disaster Medicine*, 14(4), 9–10.
- Dine, C. J., McGaghie, W. C., Bordage, G., & Shea, J. A. (2015). Problem statement, conceptual framework, and research question. *Review Criteria for Research Manuscripts*, 19.
- Fox, K. (2014). The use of census data for national development planning Focus on the 2010 population and housing census.
- Franco, L. M., Bennett, S., & Kanfer, R. (2002). Health sector reform and public sector health worker motivation: A conceptual framework. *Social Science & Medicine*, 54(8), 1255–1266.



- Frome, A., Corrado, G. S., Shlens, J., Bengio, S., Dean, J., Ranzato, M., & Mikolov, T. (2013). Devise: A deep visual-semantic embedding model. *Advances in Neural Information Processing Systems*, 26.
- Fusco, F. M., Scappaticci, L., Schilling, S., De Iaco, G., Brouqui, P., Maltezou, H. C., Brodt, H.-R., Bannister, B., Ippolito, G., & Puro, V. (2016). A 2009 cross-sectional survey of procedures for post-mortem management of highly infectious disease patients in 48 isolation facilities in 16 countries: Data from EuroNHID. *Infection*, 44(1), 57–64.
- Grant, S. (2018). Migrant and Refugee Border Deaths: Defining A Human Rights Framework. *LSE Law Review*, 3, 129–133.
- Greasley, K., & Kaczor, C. (2018). *Abortion Rights*. Cambridge University Press.
- Hauptmann, M., Stewart, P. A., Lubin, J. H., Beane Freeman, L. E., Hornung, R. W., Herrick, R. F., Hoover, R. N., Fraumeni Jr, J. F., Blair, A., & Hayes, R. B. (2009). Mortality from lymphohematopoietic malignancies and brain cancer among embalmers exposed to formaldehyde. *Journal of the National Cancer Institute*, 101(24), 1696–1708.
- Hess, K. M., Orthmann, C. H., & Cho, H. L. (2014). *Introduction to law enforcement and criminal justice*. Cengage Learning.
- Huffine, E., Crews, J., Kennedy, B., Bomberger, K., & Zinbo, A. (2001). Mass identification of persons missing from the break-up of the former Yugoslavia: Structure, function, and role of the International Commission on Missing Persons. *Croatian Medical Journal*, 42(3), 271–275.
- Iliyasu, G., Dayyab, F. M., Habib, Z. G., Tihamiyu, A. B., Abubakar, S., Mijinyawa, M. S., & Habib, A. G. (2016). Knowledge and practices of infection control among healthcare workers in a Tertiary Referral Center in North-Western Nigeria. *Annals of African Medicine*, 15(1), 34.
- Illes, M., & Wilson, P. (2020). *The scientific method in forensic science: A Canadian Handbook*.
- Jeffreys, A. J., Wilson, V., & Thein, S. L. (1985). Hypervariable ‘minisatellite’ regions in human DNA. *Nature*, 314(6006), 67–73.
- Kassie, G. M., Belay, T., Sharma, A., & Feleke, G. (2018). Promoting local ownership: Lessons learned from process of transitioning clinical mentoring of HIV care and treatment in Ethiopia. *Frontiers in Public Health*, 6, 14.
- Kazungu, J., Nanyingi, M., Katongole, S. P., Anguyo, R. D., & Wampande, L. N. (2015). The state of mortuary and mortuary services in public health facilities of south western Uganda.
- Kevles, D. J. (1995). *In the name of eugenics: Genetics and the uses of human heredity* (Issue 95). Harvard University Press.

- Khayesi, M., & Nafukho, F. M. (2016). *Informal Public Transport in Practice: Matatu Entrepreneurship*. Routledge.
- Kindig, D. A., Asada, Y., & Booske, B. (2008). A population health framework for setting national and state health goals. *Jama*, 299(17), 2081–2083.
- Koh, D., & Jeyaratnam, J. (2001). Work and health. In *Textbook of occupational medicine practice* (pp. 1–34). World Scientific Singapore.
- Komarinski, P. (2005). *Automated fingerprint identification systems (AFIS)*. Elsevier.
- MacFarlane, S. N., & Khong, Y. F. (2006). *Human security and the UN: A critical history*. Indiana University Press.
- Macharia, P. M., Mumo, E., & Okiro, E. A. (2021). Modelling geographical accessibility to urban centres in Kenya in 2019. *PloS One*, 16(5), e0251624.
- Mara, D., & Evans, B. (2018). The sanitation and hygiene targets of the sustainable development goals: Scope and challenges. *Journal of Water, Sanitation and Hygiene for Development*, 8(1), 1–16.
- Marangu, E. M. (2020). Culture and mental health in Kenya. In *The Routledge International Handbook of Race, Culture and Mental Health* (pp. 411–421). Routledge.
- Montañez-Hernández, J. C., Alcalde-Rabanal, J., & Reyes-Morales, H. (2020). Socioeconomic factors and inequality in the distribution of physicians and nurses in Mexico. *Revista de Saude Publica*, 54.
- Moody, K. J., Grant, P. M., & Hutcheon, I. D. (2005). *Nuclear forensic analysis*. CRC press.
- Murrell, D. F. (2011). *Autoimmune Blistering Diseases, Part II, An Issue of Dermatologic Clinics-E-Book* (Vol. 29, Issue 4). Elsevier Health Sciences.
- Mutethia, K. (2020). *The Constitutional Context of Human Rights Defenders in Kenya under the 2010 Constitution*. Available at SSRN 3725831.
- Naing, L., Winn, T., & Rusli, B. N. (2006). Practical issues in calculating the sample size for prevalence studies. *Archives of Orofacial Sciences*, 1, 9–14.
- Nantulya, V. M., & Muli-Musiime, F. (2001). Kenya: Uncovering the social determinants of road traffic accidents. *Challenging Inequities in Health: From Ethics to Action*, 211–225.
- Nantulya, V. M., & Reich, M. R. (2002). The neglected epidemic: Road traffic injuries in developing countries. *Bmj*, 324(7346), 1139–1141.
- Noji, E. K. (2000). The public health consequences of disasters. *Prehospital and Disaster Medicine*, 15(4), 21–31.

- Nyaberi, J. M., Kakai, R., Obonyo, C. O., & Othero, D. (2014). Perceived occupational risk of infection among hospital mortuary attendants in Nyanza Province, Kenya.
- Okoth-Okelloh, A. M., Onyango, R., Tonui, W. K., Okumu, W., & Ouma, C. (2015). Occupational Health and Safety Administration (OSHA) in the Morgues: Management and practice of the universal precautions in Morgues in Kenya.
- Olu, O. (2017). Resilient health system as conceptual framework for strengthening public health disaster risk management: An African viewpoint. *Frontiers in Public Health*, 5, 263.
- Ongong'a Otieno, J., Odundo, P. A., & Rambo, C. M. (2014). Influence of Local Authority Transfer Fund on Service Delivery by Local Government Authorities in Kenya. *International Journal of Management and Marketing Research*, 7(1), 59–72.
- Pankaj, A., & Singh, B. R. (2017). Dealing with unclaimed dead bodies-embrace the challenge. *International Journal of Community Medicine and Public Health*, 4(4), 992.
- Paripurna, A., Indriani, M., & Widiati, E. P. (2018). Implementation of Resolution no. 4/2016 of the ICPO-INTERPOL Concerning Biometric Data Sharing: Between Countermeasures Against Terrorist Foreign Fighters (FTFS) and Protection of the Privacy of Indonesian Citizens. *Brawijaya Law Journal*, 5(1), 117–142.
- Parshall, M. B. (2013). Unpacking the 2×2 table. *Heart & Lung*, 42(3), 221–226.
- Percy, B. R. (2005). The contribution of experiential learning theories to the practice of participatory technology development. *Agriculture and Human Values*, 22(2), 127–136.
- Pham, C. T., Lee, C. B., Nguyen, T. L. H., Lin, J.-D., Ali, S., & Chu, C. (2020). Integrative settings approach to workplace health promotion to address contemporary challenges for worker health in the Asia-Pacific. *Global Health Promotion*, 27(2), 82–90.
- Published by the National Council for Law Reporting & with the Authority of the Attorney-General. (2012). Kenya laws, CRIMINAL PROCEDURE CODE CHAPTER 75. *Www.Kenyalaw.Org*, 75(2), 385–388.
- Rasskazova, E., Ivanova, T., & Sheldon, K. (2016). Comparing the effects of low-level and high-level worker need-satisfaction: A synthesis of the self-determination and Maslow need theories. *Motivation and Emotion*, 40(4), 541–555.
- Reedy, P. (2020). Interpol review of digital evidence 2016-2019. *Forensic Science International: Synergy*, 2, 489–520.

- Risinger, D. M., Saks, M. J., Thompson, W. C., & Rosenthal, R. (2002). The Daubert/Kumho implications of observer effects in forensic science: Hidden problems of expectation and suggestion. *Calif. L. Rev.*, 90, 1.
- Rowe, A. K., De Savigny, D., Lanata, C. F., & Victora, C. G. (2005). How can we achieve and maintain high-quality performance of health workers in low-resource settings? *The Lancet*, 366(9490), 1026–1035.
- Saul, J. (2013). *Collective trauma, collective healing: Promoting community resilience in the aftermath of disaster* (Vol. 48). Routledge.
- Schachner, L. A., & Hansen, R. C. (2011). *Pediatric Dermatology E-Book*. Elsevier Health Sciences.
- Shako, K., & Kalsi, M. (2019). Forensic observations and recommendations on sexual and gender based violence in Kenya. *Forensic Science International: Synergy*, 1, 185–203.
- Silali, M. (2021). Health Determinants of Safe Infection Prevention Control of COVID 19 Deaths to enable safe Disposal and Cadavers Dissection as Distinct Educational Tools in Western Kenya. *International Journal of Public Health*, 7(1), 199–213.
- Silali, M. B. (2017). Factors Hindering Accessibility of Quality Medico-Legal Service in Secured Diagnostic Crime in Western Kenya. *SF J Forensics*, 1(1).
- Silali, M. B., Odero, W., & Rogena, E. (2017). Community Participation Medico-Legal Concepts to Identify Unclaimed or Missing Dead Bodies from Public Mortuaries to Improve Public Health in Western Kenya.
- Silving, H. (1974). Constitutional Fundamentals of Penal Legislation: Reflections on Another Draft of a New Penal Code for Puerto Rico. *REv.JuR. UPR*, 43, 141.
- Sodhi, K., Shrivastava, A., Arya, M., & Kumar, M. (2013). Knowledge of infection control practices among intensive care nurses in a tertiary care hospital. *Journal of Infection and Public Health*, 6(4), 269–275.
- Statistics, K. N. B. of. (2010). *The 2009 Kenya population and housing census* (Vol. 1). Kenya National Bureau of Statistics.
- Sweeney, J. T., & Fisher, D. G. (1998). An examination of the validity of a new measure of moral judgment. *Behavioral Research in Accounting*, 10, 138.
- Tolley, M. C. (2009). Parliamentary scrutiny of rights in the United Kingdom: Assessing the work of the Joint Committee on Human Rights. *Australian Journal of Political Science*, 44(1), 41–55.
- Verani, J. R., McGee, L., & Schrag, S. J. (2010). Prevention of perinatal group B streptococcal disease: Revised guidelines from CDC, 2010.

- Walløe, L. (2008). 3 Medieval and modern bubonic plague: Some clinical continuities. *Medical History*, 52(S27), 59–73.
- Watermeyer, B., McKenzie, J., & Swartz, L. (2019). *The Palgrave handbook of disability and citizenship in the global south*. Springer.
- Watkins, R. E., Wynaden, D., Hart, L., Landsborough, I., McGowan, S., Speed, G., Orb, A., Henderson, S., Wilson, S., & Calnan, W. (2006). Perceptions of infection control practices among health professionals. *Contemporary Nurse*, 22(1), 109–119.
- WHO. (2005). Disposal of dead bodies in emergency conditions. In *Technical Notes for Emergencies (Vol. 8)*. World Health Organization (WHO).
- (WHO). (2017). *Healthier, fairer, safer: The global health journey, 2007–2017*. World Health Organization.

# APPENDICES

## APPENDIX I: Proposal Approval



MASINDE MULIRO UNIVERSITY OF SCIENCE AND TECHNOLOGY (MMUST)

Tel: 056-30870  
Fax: 056-30153  
E-mail: [directordps@mmust.ac.ke](mailto:directordps@mmust.ac.ke)  
Website: [www.mmust.ac.ke](http://www.mmust.ac.ke)

P.O Box 190  
Kakamega – 50100  
Kenya

---

Directorate of Postgraduate Studies

---

Ref: MMU/COR: 509099

7<sup>th</sup> February 2022

Maurice Barasa Silali,  
HPH/H/0154997/2020,  
P.O. Box 190-50100,  
**KAKAMEGA.**

Dear Mr. Barasa,

**RE: APPROVAL OF PROPOSAL**

I am pleased to inform you that the Directorate of Postgraduate Studies has considered and approved your Ph.D. Proposal entitled: *“Occupational Health Risks, Medico Legal Procedures and Health Laws Attributed to Unceremonious Mars Grave Disposal of Unclaimed Corpses by Public Mortuaries in Kenya”* and appointed the following as supervisors:

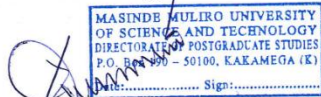
- |                          |         |
|--------------------------|---------|
| 1. Prof. Emily Adhiambo  | - JKUAT |
| 2. Dr. Maximilla Wanzala | - MMUST |
| 3. Dr. Nathan Shaviya    | - MMUST |

You are required to submit through your supervisor(s) progress reports every three months to the Director Postgraduate Studies. Such reports should be copied to the following: Chairman, School of Public Health, Biomedical Sciences and Technology Graduate Studies Committee and Chairman, Public Health Department. Kindly adhere to research ethics consideration in conducting research

It is the policy and regulations of the University that you observe a deadline of three years from the date of registration to complete your Ph.D. thesis. Do not hesitate to consult this office in case of any problem encountered in the course of your work.

We wish you the best in your research and hope the study will make original contribution to knowledge.

Yours Sincerely,



Prof. Stephen O. Odebero, PhD, FIEEP  
**DIRECTOR, DIRECTORATE OF POSTGRADUATE STUDIES**

## APPENDIX II: Ethical Approval



**MASINDE MULIRO UNIVERSITY OF SCIENCE AND TECHNOLOGY**  
Tel: 056-31375 P. O. Box 190,  
Fax: 056-30153 50100,  
E-mail: [ierc@mmust.ac.ke](mailto:ierc@mmust.ac.ke) Kakamega,  
Website: [www.mmust.ac.ke](http://www.mmust.ac.ke) KENYA

### Institutional Ethics and Review Committee (IERC)

REF: MMU/COR: 403012 Vol 6 (01)

Date: February 17<sup>th</sup>, 2022

To: Maurice Barasa Silali

Dear Sir,

**RE: OCCUPATIONAL HEALTH RISKS, MEDICO LEGAL PROCEDURES AND HEALTH LAWS ATTRIBUTED TO UNCEREMONIOUS MASS GRAVE DISPOSAL OF UNCLAIMED CORPSES BY PUBLIC MORTUARIES IN WESTERN KENYA.**

This is to inform you that *Masinde Muliro University of Science and Technology Institutional Ethics and Review Committee (MMUST-IERC)* has reviewed and approved your above research proposal. Your application approval number is **MMUST/IERC/009/2022**. The approval period is *February 17<sup>th</sup>, 2022-February 17<sup>th</sup>, 2023*.

This approval is subject to compliance with the following requirements;

- i. Only approved documents including informed consents, study instruments, MTA will be used.
- ii. All changes including (amendments, deviations, and violations) are submitted for review and approval by **MMUST-IERC**.
- iii. Death and life threatening problems and serious adverse events or unexpected adverse events whether related or unrelated to the study must be reported to **MMUST-IERC** within 72 hours of notification
- iv. Any changes, anticipated or otherwise that may increase the risks or affected safety or welfare of study participants and others or affect the integrity of the research must be reported to **MMUST-IERC** within 72 hours
- v. Clearance for export of biological specimens must be obtained from relevant institutions.
- vi. Submission of a request for renewal of approval at least 60 days prior to expiry of the approval period. Attach a comprehensive progress report to support the renewal.
- vii. Submission of an executive summary report within 90 days upon completion of the study to **MMUST-IERC**.

Prior to commencing your study, you will be expected to obtain a research license from National Commission for Science, Technology and Innovation (NACOSTI) <https://research-portal.nacosti.go.ke> and also obtain other clearances needed.

Yours Sincerely,


Prof. Gordon Nguka

**Chairperson, Institutional Ethics and Review Committee**

Copy to:

- The Secretary, National Bio-Ethics Committee
- Vice Chancellor
- DVC (PR&I)

**APPENDIX III:NACOSTI PERMIT**

 <b>REPUBLIC OF KENYA</b>	 <b>NATIONAL COMMISSION FOR SCIENCE, TECHNOLOGY &amp; INNOVATION</b>
Ref No: <b>924999</b>	Date of Issue: <b>06/January/2022</b>
<b>RESEARCH LICENSE</b>	
	
<p><b>This is to Certify that Mr. Maurice Barasa Silali of Masinde Muliro University of Science and Technology, has been licensed to conduct research in Kakamega on the topic: OCCUPATIONAL HEALTH RISKS, MEDICO LEGAL PROCEDURES AND HEALTH LAWS ATTRIBUTED TO DELAYED DISPOSAL OF UNCLAIMED BODIES BY PUBLIC MORTUARIES IN WESTERN KENYA for the period ending : 06/January/2023.</b></p>	
License No: <b>NACOSTI/P/22/14942</b>	
<b>924999</b> Applicant Identification Number	 Director General <b>NATIONAL COMMISSION FOR SCIENCE, TECHNOLOGY &amp; INNOVATION</b>
	Verification QR Code 
<p><b>NOTE: This is a computer generated License. To verify the authenticity of this document, Scan the QR Code using QR scanner application.</b></p>	



**APPENDIX IV: Informed Consent Form**

Greetings, I am Maurice B Silali, a Student at the MasindeMuliro University of Science and Technology, pursuing Ph.D. degree in Public Health (*Epidemiology and Population Health*), now working on my research thesis

***‘Occupational Epidemics, MedicoLegal Procedures, Health Laws and Health System Factors Attributed to Unceremonious Mass Grave Disposal of Unclaimed Corpses by Public Mortuaries in Western Kenya.’***

I have been, certified by MasindeMuliro University of Science and Technology. Ethics Review Committee. Permitted by NACOST, Chief Government Pathologist, and MOHs’ of western Kenya facilities, to conduct the Study. You as one of my study respondents, wish to seek for your consent to respond to the questionnaire of my survey and KII discussions of my interview, which take around forty-five (45) minutes. Please feel free to answer the questionnaire.

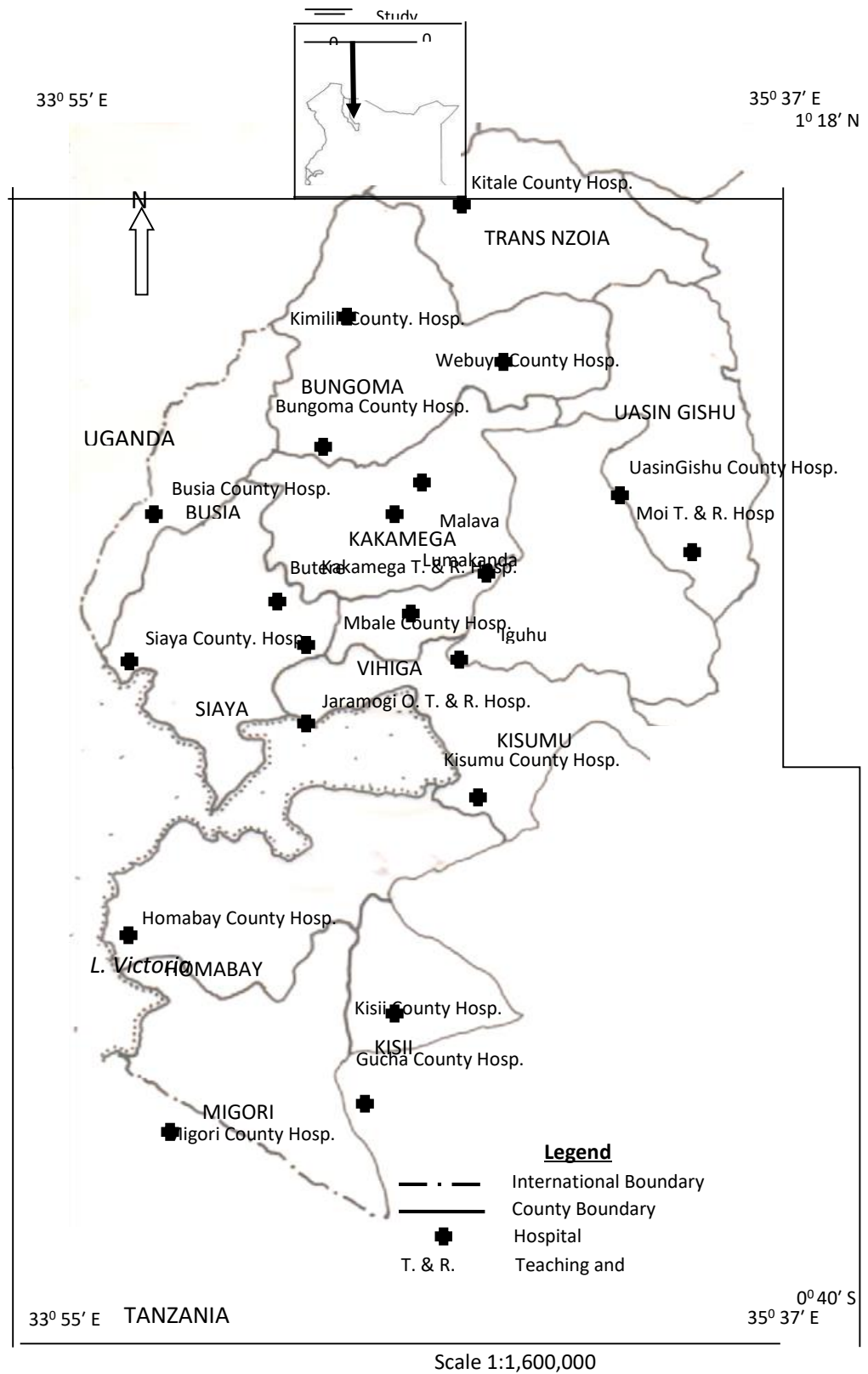
I wish to assure you of the confidentiality, of our responses. The information gathered, will not be used by any person apart, from the interest of the research thesis in question.

Participant’s signature..... Date.....

Researchers signature ..... Date.....

*Thank you for participating*

## APPENDIX V: Map of Western Kenya



**Figure 3.1:** Show Distributions of Public Mortuaries in Western Kenya  
Source. (County's Administrative and Political Units, 2014)

## APPENDIX VI: Semi Structured Questionnaire

### (PRIMARY STUDY POPULATION)

***Questionnaire to Assess Main Occupational Epidemics, Main Medico Legal Procedures, Health Laws, and Health System Factors attributed to Unceremonious Mass Grave Disposal of Unclaimed Corpses in Western Kenya.***

Greetings! My name is Maurice B Silali. I am a student at the Masinde Muliro University of Science and Technology. I am carrying out research as part of my academic requirement. I am interested in conducting a study, to exploit main health hazards, infectious health risks, main medico-legal procedures, and health laws attributed to unceremonious mass grave disposal of unclaimed corpses by public mortuaries in western Kenya. The results of this study will be useful in revitalizing Chapter 4 of the Bill of Rights in Kenya. Mitigating achievement of (SDG) goal 3 on mortality infectious prevention controls and, (SDG) goal 4 on equitable education to health population by 2030. In addition, eliminate possible challenges influencing the failure of police service in the study region to implement the standard medico-legal frameworks and decrease, the implementation of the health laws governing medico-legal procedures, via justice accountability and improve population health.

You kindly participate by responding to the formal survey questions in this questionnaire. Whatever information you provide strictly remains confidential and will only be for researcher study purposes. Your participation is voluntary and you are free to decline or opt in the middle should you become uncomfortable. The relevant authorities have approved this study.

***Please respond as honestly as possible for us to get a true picture of situations in our public mortuaries. Thank you very much***

Name of the health facility .....Date.....

**CODE Number**.....

## A. Social Demographic Information

Tick your correct Responses in (     )

1. Name (optional) .....
  
2. Sex
  - 1) Male (     )
  - 2) Female (     )
  
3. Age
  - 1) (15-24) (     )
  - 2) (25-34) (     )
  - 3) (35-44) (     )
  - 4) (45-54) (     )
  - 5) (55-64) (     )
  - 6) (65-74) (     )
  - 7) Over 75 (     )
  
4. Marital status
  - 1) Married (     )
  - 2) Single (     )
  - 3) Divorced (     )
  - 4) Widowed (     )
  - 5) Others (specify) (     )
  
5. Level of education in complete years
  - 1) Primary 1 ,2 ,3, 4,5, 6,7,8 (     )
  - 2) Secondary 1,2,3,4, 5,6 (     )
  - 3) Tertiary 1,2, 3,4,5,6,7,8 (     )
  - 4) Other (specify) (     )
  
6. Religion

- 1) Catholic ( )
- 2) Protestant ( )
- 3) Muslim ( )
- 4) SDA ( )
- 5) Others (specify) ( )
- 7. Terms of service

- 1) Casual ( )
- 2) Permanent ( )
- 3) Contract ( )
- 4) Volunteer ( )
- 5) Others (specify) ( )

8. What is your current designation as far as mortuary service provision is concerned?

- 1) Public health officer ( )
- 2) Pathologist ( )
- 3) Mortician ( )
- 4) Mortuary in charge ( )
- 5) Hospital administrator ( )
- 6) Detective Police ( )
- 7) Others specify ( )

**B. ASSESSING KNOWLEDGE ON THE MAIN OCCUPATIONAL EPIDEMICS FOUND IN MORTUARY AND UPTAKE OF NON PHARMACEUTICAL INTERVENTIONS, (NPIs) AT WORK PLACE**

9. For how long have you worked in the current mortuary?

- 1) Less than 1 month ( )
- 2) 1-3 years ( )
- 3) 3 – 6 years ( )
- 4) 6- 12 years ( )

10. Do you know the main infectious Health risks attributed with occupational exposure to the delayed disposal of unclaimed bodies in public mortuaries?

1) Yes ( )

2) No ( )

11. In total numbers how many main infectious conditions do you know by ticking?

1) Hepatitis ( )

2) Tuberculosis (TB) ( )

3) Fungal infection ( )

4) HIV infection ( )

5) Formalin nose /eye irritation ( )

6) Cholera infection ( )

12. Are you aware of any type of vaccination given to you against mortuary infection since you were employed in this facility?

1) Yes ( )

2) No ( )

13. If yes above, which vaccine

1) TB vaccine ( )

2) Hepatitis B vaccine ( )

3) Cholera vaccine ( )

4) Other vaccines specify ( )

14. Have you ever been infected by any of the main infectious health risks attributed to occupational exposure to the delayed disposal of unclaimed bodies?

1) Yes ( )

2) No ( )

15. If yes in question 14 which infectious health risk/risks?

1) Cholera ( )

2) Hepatitis ( )

3) Tuberculosis ( )

4) Fungal infection ( )

16. Where did you seek medical attention /treatment?

1) Mortuary facility ( )

2) Bought drugs in Pharmacy ( )

3) Traditional doctor ( )

4) Healed itself ( )

5) Other specify ( )

17. In total how many mortuary staffs were affected by this / these disease /s, at that particular time

1) Only me ( )

2) Two of us ( )

3) More than three ( )

18. Who cleared your medical bills and expenses in the hospital?

1) Self ( )

2) Hospital cover ( )

3) Friends and relative contributions ( )

4) Other Specify

19. When one is admitted to the hospital as an inpatient does she or he earn her or his complete salary, during that period she /he is sick /hospitalized?

1) Yes ( )

2) No ( )

20. If yes in question 19 whom does she or he delegate duties to when sick?

1) My colleague ( )

2) Nobody ( )

21. How can we prevent the spread of main infectious health risks attributed to occupational exposure to the delayed disposal of unclaimed bodies in public mortuaries?

Tick all **correct** responses.

- 1) Use of (PPE) personal protective equipment ( )
- 2) Proper lighting and ventilation ( )
- 3) Working for fewer hours ( )
- 4) Regular vaccination ( )
- 5) Following the rules ( )
- 6) Use of firefighting equipment ( )
- 7) Others (specify) ( )

22. Are aware of any Non Pharmaceutical Interventions (NPIs) that can be used by mortuary service providers during autopsy or embalming procedures?

- 1) Yes ( )
- 2) No ( )

23. Tick any five (5) /Nonpharmaceuticals Interventions commonly used in your mortuary?

- 1) Helmet/ caps ( )
- 2) Gloves ( )
- 3) Overalls ( )
- 4) Anti-mist goggles ( )
- 5) Boots ( )
- 6) Respirators ( )
- 7) Others (specify) ( )

24. Do you expect to achieve more Knowledge and skills on what you do/ practice in your workplace?

- 1) Yes ( )
- 2) No ( )

25. If yes question 24, how did you acquire these skills?

- 1) By job training ( )
- 2) Continuous medical education ( )
- 3) Pre-employment training ( )
- 4) By observing other ( )
- 5) Others (specify) ( )



26. On a likert scale how do you rate the cost of managing the health risks attributed to occupational exposure to the delayed disposal of unclaimed bodies in your place of work?

- 1) Expensive, ( )
- 2) Very expensive ( )
- 3) Dearly expensive ( )
- 4) I do not know ( )

27. In your word how best can we prevent/control these infectious health risks attributed to occupational exposure to the delayed disposal of unclaimed bodies in public mortuaries

.....  
.....?

**C. ESTABLISH EFFECTIVENESS OF MAIN MEDICO-LEGAL PROCEDURES AND HEALTH LAWS ASSOCIATED WITH UNCEREMONIOUS MASS GRAVE DISPOSAL OF UNCLAIMED CORPSES IN WESTERN KENYA**

28. Are you aware of any medico-legal factors required to process unclaimed bodies or missing dead persons in the public mortuary?

- 1) Yes ( )
- 2) No ( )

29. If Yes, Tick the main medico- factors and Health laws attributed to unceremonious mass grave disposal of unclaimed bodies in public mortuaries.

- 1) Criminal penal code Cape 75 ( )
- 2) Health Act Cap 242 ( )
- 3) Local Government Act Cap 265 ( )
- 4) Amendments and gazette notices on unclaimed bodies ( )
- 5) Coroner service act 2017 ( )
- 6) Birth and Death Notifications CAP 149 ( )



35. Do you hold /attend any occupational health and safety maintenance meetings at your place of work?

- 1) Yes ( )
- 2) No ( )

36. If Yes how often do you meet in a year?

- 1) Weekly ( )
- 2) Monthly ( )
- 3) Two- three months ( )
- 4) Every six months ( )
- 5) Once in year ( )
- 6) Cannot remember ( )

37. Who chairs the occupational health and safety maintenance meeting in the mortuary?

- 1) Hospital administrators ( )
- 2) Detective police ( )
- 3) Morticians ( )
- 4) Morgue in charge ( )
- 5) Occupational Health and safety officer. ( )
- 6) Others (specify) ( )

**D. IDENTIFYING THE MAIN HEALTH SYSTEM FACTORS ATTRIBUTED TO UNCLAIMED CORPSES IN WESTERN KENYA.**

38. Tick the main contents of a quality health system that runs a public mortuary?

- 1) Headed/managed by a person with qualifications and skills in forensic and mortuary sciences ( )
- 2) Employed only trained morticians with at least 2 yrs. certificate qualifications ( )
- 3) Focused coordination and partnerships between the mortuary and forensic departments ( )

4) Retrenchment of all untrained morticians from the public mortuaries ( )

39. Which is your highest qualification achieved as far as mortuary service provision is concerned ( )

1) KCPE ( )

2) KCSE ( )

3) Certificate in Mortuary Science ( )

4) Certificate in Forensic science ( )

5) Diploma in forensic science ( )

6) Diploma in Mortuary Science ( )

7) Degree in mortuary or forensic science ( )

8) Others specify ( )

40. Where did you acquire the skills and knowledge in Mortuary / forensic sciences, which allows you to work in the mortuary?

1. In Kenya ( )

2. Outside Kenya ( )

3. Online ( )

4. the job / in-house training by mentors/professionals ( )

5. Others specify ( )

41. Who is currently in charge of your mortuary?

1. Hospital administrator ( )

2. Mortuary in charge ( )

3. Public health officer ( )

4. Mortician ( )

5. Nurse ( )

42. In your own words rate the qualification of the in-charge in question 41 above, and does qualify to manage the mortuary to achieve all its targets and objectives efficiently.

.....  
.....

43. Have you ever witnessed a doctor performing a postmortem in your mortuary?

i. Yes ( )

ii. No ( )

44. If yes in question 43, which line of specialization was this Doctor who did postmortem?

1) Medical Doctor ( )

2) Pathologist ( )

3) Public health officer ( )

4) Anatomic Technologist ( )

5) Forensic technologist ( )

6) Others (specify) ( )

45. How often does the pathologist visit your mortuary?

1) Weekly ( )

2) Bi-weekly ( )

3) 3-4 weeks ( )

4) Once in two months ( )

5) Twice a year ( )

6) Once a year ( )

7) Others (specify) ( )

46. Do detective police that admits Unclaimed Corpses open inquest files then later come to close the file after the postmortem before the expiry of 90 days?

1) Yes ( )

2) No ( )

47. How frequently do detective police attach to this facility visit, your mortuary?

1) Perform autopsy ( )

2) Open/close autopsy file ( )

3) Admit unclaimed body only ( )

4) During unknown body inquiry ( )

5) Daily ( )

6) Others (specify) ( )

*E Establishing on type of Embalming method used in Public mortuaries as an agent of Health System Factors on infection prevention control from Unclaimed corpses.*

48 When performing embalming Tick chemicals used commonly in your mortuary

1) Formalin ( )

2) Alcohol ( )

3) Industrial salt ( )

4) Methlysallylate ( )

5) Glycerol ( )

6) Phenol ( )

7) Others specify ( )

49. Which main methods do you use to embalm bodies at your workplace?

1) Gravitation ( )

2) Embalming machine ( )

50. Do you have any mortuary sheets to wrap the bodies after embalming that your mortuary purchased?

1) Ye ( )

2) No ( )

51. Do you have *Aluminum metal name tags* for tagging bodies for easy and permanent identification of dead bodies even after 15 years of disposal?

1) Yes ( )

2) No ( )

52. Where do you keep embalmed bodies at your workplace?

1) Cold room ( )

2) Floor ( )

3) Mixed with none embalmed bodies ( )

4) Shelves ( )

53. Where do you keep all received Unclaimed corpses at your workplace?

54. Using the Likert scale how frequently do you organize forensic continuous education in your department

- 1) Frequent ( )
- 2) Less frequent ( )
- 3) More frequent ( )

**E. ESTABLISHING HOW MORTUARY & FORENSIC SERVICE PROVIDERS' KNOWLEDGE, AND ATTITUDES ON INFECTION PREVENTION CONTROL PRACTICES INFLUENCE UN CEREMONIOUS MASS GRAVE DISPOSAL OF UNCLAIMED CORPSES IN WESTERN KENYA**

55. Among the following mortuary infectious health risks. Which, one do you feel contains the least infection rates for the healthy population?

- 1) Tuberculosis ( )
- 2) Hepatitis infection ( )
- 3) Fungal infection ( )
- 4) HIV infection ( )
- 5) Formalin effect ( )
- 6) Others specify ( )

56. You confidently feel, we can easily reduce the long and bureaucratically medico-legal procedures to promote early disposal of unclaimed corpses in public mortuaries?

- 1) By employing trained and qualified morticians in all public mortuaries since have learned how to expertise the procedures promptly within the gazette 90 days for disposal ( )
- 2) Enhance mutual coordination between mortuary and forensic departments ( )
- 3) Professionalization of mortuary services in all public mortuaries ( )

4) Promoting mortuary education to enlighten the population health on what is involved in quality complete medico-legal procedures to allow an autopsy to be done. ( )

5) Others Specify ( )

57. Have ever been immunized against Hepatitis infection and tetanus?

1) Yes ( )

2) No ( )

58. If Yes which year?

1) This year ( )

2) Last year ( )

3) Above five years ago ( )

4) Below five years since immunized. ( )

5) Never been immunized ( )

59. Do you have any medical cover against any occupational infectious disease?

1) Yes ( )

2) No ( )

60. If Yes who gives compensation in case of any occurrence?

1) Hospital pays for me ( )

2) Myself. ( )

61. If your fellow staff members become sick while at work are they given sick off to recover?

1) Yes ( )

2) No ( )

62. If Yes, is his salary deducted at the end month because he did not work?

1) Yes ( )

2) No ( )



63. Does the facility conduct mortuary-based health education regularly?

1) Yes ( )

2) No ( )

64 If Yes where do you get facilitators / TOT?

1) Internal facilitators ( )

2) Outsource the facilitators from the National unit. ( )

65. If resources are available are you willing to advance your course in forensic /mortuary science?

1) Quite well ( )

2) Very well ( )

3) Well ( )

4) Somehow well. ( )

66. If we provide you with a commission of two days' salary cash pay per disposal of unclaimed bodies will it reduce the backload of disposals in the mortuary?

1) Yes ( )

2) No ( )

67 If Yes in question 62 explain in your own words how the introduction of 2 days' salary cash as a commission to morticians going for disposal will reduce the number of delays in unclaimed bodies in public mortuaries

.....  
.....  
.....  
.....

68. In your own words how does how length and bureaucratic medico-legal procedure hinder the implementation of the Public health act and Local government law

.....  
.....  
.....

69. Does your mortuary have an open elbow tap water at the front of the mortuary or reception with disinfectant to allow visitors to wash their hand and rinse their hands before they leave the mortuary premises?

1) Yes ( )

2) No ( )

70. If No in question 68, where do mortuary visitors wash their hands after witnessing autopsy or mourning?

5) In their homes ( )

6) Wipe with tissue paper ( )

7) Use their handkerchiefs ( )

8) I do not know where they wash their hands ( )

**E ASSESS LEVEL OF KNOWLEDGE ACHIEVED IN BASIC SCIENCE SUBJECTS TO INFLUENCE QUALITY EMBALMENT/ FORENSIC SCIENCE UPTAKE**

A, What grades or marks did you achieve in the following subject in you're a or O level education. **Just fill in the the marks or grade achieved in the spaces provided.**

1. Biology.....

2. Physics.....

3. Chemistry .....

*Thank you for a great time to participate in this study*

**APPENDIX VII: Retrospective Review Form**

**(SECONDARY STUDY POPULATION)**

**I OCCUPATIONAL EPIDEMICS, MAIN MEDICO LEGAL, HEALTH LAWS & HEALTH FACTORS ATTRIBUTED TO UNCONVENTIONAL MASS GRAVE DISPOSAL OF UNCLAIMED CORPSES IN WESTERN KENYA.**

**Name of the mortuary facility -----**

*A. Total Demographic characteristics for unclaimed bodies admitted in mortuary by inquest/ crime police from January 2017 to December 2021.*

a) Gender/age	Unknown Male	Unknown Female	Total
Year	.....	.....	.....
	2017	.....	.....
	2018	.....	.....
	2019	.....	.....
	2020	.....	.....
	2021	.....	.....
Total	.....	.....	.....
5yrs.			

1. b). Gender / Age	Unknown children'	Unknown infants/stillbirths
Year	.....	.....
2017	.....	.....
2018	.....	.....
2019	.....	.....

.....  
2020

.....  
2021

**Total Unclaimed.....** ..... 5 yrs.

Manner / Cause of Death admitted in public mortuary

**i. Manner of Dead total per Year: 2017,2018 2019**  
**2020 2021**

- a. Homicide cases ..... ..
- b. Suicide cases ..... ..
- .....
- c. Road traffic accident ..... ..
- .....

**Total** ..... ..

**ii. Cause of Dead Total per Year: 2017 2018 2019**  
**2020 2021**

- a. Natural ..... ..
- ..... ..
- b. Unnatural ..... ..
- .....

**Total Attributed Cause of Dead for Last 5YRS**

.....

**iii. Number of Unclaimed with Fingerprints/ DNA done: 2017 2018 2019**

2020 202..... ..

**Total Finger Prints/DNA Done for Last 5YRS**

.....

**iv. Number of Unclaimed bodies postmortem done 2017 2018 2019 2020**

2021

..... ..

**Total Postmortem Done for 5 yrs .....**

v. **Number of Unclaimed bodies without postmortems done:** 2017 2018  
 2019 2020 2021 .....

***Total Unclaimed Without Postmortem Done, Thus Mass Disposal for 5yrs ...***

B. Data Filing system of medico-legal in the facility: 2017 2018 2019  
 2020 2021

i. ***Likert's Scale Tick*** Appropriate Very good ..... ..  
 Good..... ..  
 Fair..... ..  
 .....  
 Bad..... ..  
 .....  
 Very Bad ..... ..  
 .....

**C. JUSTICE, ACCOUNTABILITY & DOCUMENTATION FOR UNCLAIMED BODIES BEFORE DISPOSAL**

i.) **No. of unclaimed bodies given Death certificates by Pathologists:** 2017  
 2018 2019 2020 2021 .....

***Total Unclaimed bodies disposed of with Death certificates for 5yrs .....***

ii) **No. of unclaimed bodies given Court orders by Magistrate:** 2017 2018  
 2019 2020 2021 .....

***Total Unclaimed has given Court orders by the magistrate for disposal for 5yrs.....***

iii). **No. of unclaimed bodies Donated to medical schools:** 2017 2018 2019  
 2020 2021 .....

***Total Unclaimed Bodies Donated to for Cadaver Preparation for 5yrs .....***

**D. KNOWLEDGE ATTITUDE AND PRACTICES ON  
UNCEREMONIOUS MASS DISPOSAL OF THE UNCLAIMED  
CORPSES**

- i. In your own opinion what is/ are effects of performing mass disposal on adult unclaimed bodies who have got identity cards and are fellow citizens of Kenya. As far as criminal justice and accountability are concerned in Kenya.
  - ii. What are the main impacts of mass disposal on the community cultural practices, and psychosocial effects on the health population?
  - iii. What are the main occupational health risks attributed to accumulated unclaimed bodies in public mortuaries as far as Public health is concerned?
- E. How **BEST** can we improve and prompt the accessibility of medico-legal findings to influence the early disposal of unclaimed bodies in Kenya to respective next of Kin and not mass disposal to cemeteries?

**II TO ASSESS LEVEL OF OCCUPATIONAL EPIDEMICS  
ATTRIBUTED TO THE HANDLING OF UNCLAIMED CORPSES BY  
MORTUARY SERVICE PROVIDERS IN WESTERN KENYA.**

<b>A. Frequency Distribution Of Occupational Health Hazards Attributed To Handling Of Overstayed Unclaimed Corpses By Ticking ( ). ONLY one/one that you have ever been affected while working in the mortuary.</b>										
<b>NATURE OF HAZARD</b>	<b>INCIDENCE OF ATTACK</b>									
Chemical										
Biological										
Psychosocial										
Ergonomic										
Physical										
work organization										
Environmental										

**B. Distribution of occupational Epidemics attributed to handling of overstayed Unclaimed corpses by Ticking ( ) ONLY one/ ones you have ever been affected while working in the mortuary**

<b>Name of Potential risk exposure unclaimed Corpse</b>	<b>Frequency of Attack</b>
1.Infective Hepatitis B antigens	
2.Infective Hepatitis C antigens	
3.Menengitis	
4.Merceration of integuments due to formalin	
5.Infectoius Skin disease	
6.HIV/AIDs	
7.Tuberclosis infection	
8.Leukemia due to formalin exposure	

*Thank you for participating*

**APPENDIX VIII: Key Informant Interview (KII) /Focus Group Discussion (FGD) Guides**

*Key Informants Interviews (KII) Guide for Pathologist, Public Health Officers, Detective Police, Mortuary in Charge and Hospital Administrators, and FGD for Morticians.*

**To investigate main Occupational Health Epidemics, Medicolegal Procedures, Health laws, and Health Epidemics attributed to Unceremonious Mass Grave Disposal of Unclaimed Corpses in western Kenya**

**Background Information**

1. Name of interviewee.....
2. Name of organization.....
3. Position.....
4. Period worked.....other positions.....
5. Date of interview.....

The interview will be administered to Pathologists, public health officers, hospital administrators, detective police, and the mortuary in charge of public mortuaries in western Kenya.

**Theme one: KNOWLEDGE FACTORS**

Probes:

1. What are the main occupational health hazards and infectious health risks associated with delayed disposal of unclaimed bodies?
2. Are your mortuary staffs usually vaccinated against Hepatitis, B Tuberculosis, and cholera vaccines?
3. Do you think the other service providers and the community households visiting public mortuaries are aware of the main Health hazards and risks, Medico-legal procedures, and health laws associated with unceremonious mass grave disposal of unclaimed corpses?
4. What do you think should be done to inform them about the main Health/ hazards, risks, and Medico Legal Procedures attributed to unceremonious mass grave disposal of unclaimed corpses, which are not aware off.?



5. Which corrective measures is the government undertaking, to reduce the length and bureaucratic medico–legal procedures needed before an autopsy is done on unclaimed corpses and released to next of kin for burial with the stipulated 90 days of cold storage?
6. What are some of the health system factors put in place in your facility to ensure the smooth running of the mortuary/ forensic services as pertains to the level of staffing and qualifications, their training, serviceability of cold rooms, equipment and supplies, and measures for infection prevention control and improve forensic service delivery?
7. Are you aware of how the magnitude of lengthy and bureaucratic implementation of medico–legal factors hinders the timely implementation of Public health and local government laws that allow early disposal of unclaimed bodies in public cemeteries?
8. Are you of the importance of Maslow's theory on the motivation of staff to increase mortuary/forensic service production and health delivery in the facility?
9. How best have you implemented the basic principle of infection control (hand wash hygiene) in a mortuary environment?
10. Do you have records of quality infectious control of main health risks, medicolegal procedures, and qualified and trained mortuary staff now?
11. How best the two sections can do: mortuary and forensic departments work to reduce the delayed disposal of unclaimed bodies in public mortuaries.

**Theme Two: Analysis of the main occupational Epidemics attributed to unceremonious mass grave disposal of unclaimed corpses by public mortuaries in Western Kenya**

**Probes:**

1. In your opinion, which is/are the common occupational hazard and infectious health risks/s associated with occupational exposure when handling unclaimed corpses in your mortuary?
2. Do you think that all those have been associated with delayed disposal of unclaimed bodies?
3. How frequently do you vaccinate mortuary service providers against the mentioned infectious mortuary diseases?

4. Do you budget for mortuary infectious control equipment and repairs annually?

**Theme Three: Medico Legal procedures and Health laws attributed to unceremonious mass grave disposal of unclaimed corpses in western Kenya**

**Probes:**

1. In total how many days do it take to complete the implementation of the lengthy and bureaucratic medico-legal procedures, which authorize an autopsy to be carried out on an unclaimed bodies and close the inquiry filed?
2. What are your feelings about the implementation of medico-legal procedures in terms of effectiveness and practicability here in your mortuary premises?
3. Can you give examples of your best practice on the implementation of medico–legal procedures shortly?
4. How will you gauge the rate of compliance of these medico-legal procedures in promote utilization of public health and local government laws?
5. Are these medico–legal procedures and health laws known to all mortuary service providers?
6. Does your office have enough capacity to enforce both medico-legal procedures and health laws in terms of?
  - a) Numbers of staff? (Who works in the mortuary?)
  - b) Level of training in forensic/mortuary science?  
(Certificates/diplomas/degrees/masters)
7. How often do you or someone from your office visit the mortuary and what happens during the visit
8. Who are other mutually synergistic partners charged with duties and responsibility to ensure all medico-legal procedures are applied correctly?
9. Is there any time you intend to collaborate your medico–legal procedures with another stakeholder to improve service delivery in general?

**Theme Four:** *evaluating how mortuary service providers' Knowledge, Attitudes on infection Prevention control practices, influence occupational exposure to delayed disposal of unclaimed bodies in public mortuaries.*

**Probes:**

1. How do mortuary/forensic service providers' knowledge and perception of infection controls and prevention practices influence the disposal of unclaimed bodies in your facility
2. In your own opinion, how can you rate the culture of the surrounding community on the outcome of delayed disposal of unclaimed bodies?
3. What are common infectious prevention control practices used to mitigate infection in your mortuary premises?
4. How do your staff in the mortuary implement the hand wash hygiene rules?
5. Do you have an open elbow tap water constructed in the front office to facilitate infection prevention control measures for mortuary visitors?

**Theme Five:** *Best Practices*

**Probes:**

1. In your own opinion, what do you think needs to be done to mitigate the main occupational Health hazards and infectious risks, the main Medico Legal Procedure attributed to occupational exposure to mass grave Disposal of unclaimed bodies in public mortuaries in western Kenya?
2. From your experience what are challenges that, you have encountered in the control and prevention of infectious occupational health risks and ensuring compliance in all medico-legal procedures before postmortem is done to allow subsequent procedures involved in the disposal of unclaimed bodies?
3. What recommendations do you have as far as health risks and medicolegal procedures attributed to occupational exposure to the delayed disposal of unclaimed bodies from public mortuaries in western Kenya are concerned?
  - i. Recommendations for other partners
  - ii. Recommendations for your Facility
  - iii. Recommendations for the employees
  - iv. Recommendations for MOH

Thank you for participating.

**APPENDIX IX: Observation Checklist**

**OCCUPATIONAL EPIDEMICS, MEDICO-LEGAL PROCEDURES, AND HEALTH LAWS ATTRIBUTED TO UNCEREMONIOUS MASS GRAVE DISPOSAL OF UNCLAIMED CORPSES IN WESTERN KENYA**

**Scoring Guide:**

0 — **NOT** observed

1— Observed with beginning communication skills or partially completed tasks

2— Observed with expert mortician-centered communication skills\*, completed all tasks

Session content	Observed?	Observed w/prompt	N/A	Notes
Establishing Rapport				
Introduced self	0 1 2			
Used mortuary service providers name	0 1 2			
Started with short non-mortuary interaction	0 1 2			
Negotiating the topic of the thesis for the mortuary visit				
Elicited the mortuary service provider with the full topic of study using multiple specific questions upfront	0 1 2			
Requested mortician prioritization in my study	0 1 2			
Negotiated on the topic of the thesis including mortuary service providers' concerns	0 1 2			

Prioritized mortician's most important concern first (target population)	0 1 2			
Offered routine consent to respondents <input type="checkbox"/> Find out and document the main risks associated with delayed disposals <input type="checkbox"/> determine medico-legal procedures associated with delayed disposal of unclaimed bodies <input type="checkbox"/> assess health system factors associated with delayed disposal, of unclaimed bodies <input type="checkbox"/> evaluate how mortuary service providers' Knowledge, Perceptions on infection control, and Prevention practices, influence delay disposal of unclaimed bodies	0 1 2			
<b>Gathering Information on Demographic Characteristics</b>				
Discussed confidentiality issues	0 1 2			
Used normalizing language when asking about sensitive behaviors or feelings	0 1 2			
Invited mortuary service provider to talk about concerns, beliefs, and expectations about analysis of health risks and medico-legal procedures associated with delayed disposal of public mortuaries	0 1 2			

Used mainly open-ended, non-leading questions	0 1 2			
Used active listening techniques: eye contact, non-verbal cues, paraphrasing/summarizing morticians concerns	0 1 2			
Elicited key information on the analysis of health risks and medico-legal procedure attributed to occupational exposure to the delayed disposal of unclaimed bodies from public mortuaries centered on mortuary service providers' perspective and concerns	0 1 2			

Session content	Observed ?	Observed w/prompt	N / A	Notes
<b>Gathering Information on Demographic Characteristics, cont.</b>				
Gathered info on the level of education completed: <input type="checkbox"/> KCPE <input type="checkbox"/> KSCE <input type="checkbox"/> Tertiary <input type="checkbox"/> Middle colleges of forensic and mortuary sciences	0 1 2			
<b>Marital Status</b>				

<input type="checkbox"/> Married <input type="checkbox"/> Single <input type="checkbox"/> widow <input type="checkbox"/> Divorced	0 1 2			
<b>Religion</b>				
<input type="checkbox"/> Roman Catholic <input type="checkbox"/> Muslims <input type="checkbox"/> Protestant	0 1 2			
<b>Age of respondents</b> <b>Sex</b> <input type="checkbox"/> male <input type="checkbox"/> females	0 1 2			
<b>Session content</b>				
The structural condition of the mortuary <input type="checkbox"/> New <input type="checkbox"/> Old <input type="checkbox"/> Fair state of repair <input type="checkbox"/> Poor state of repair	0 1 2 3			
Ventilation of the mortuary <input type="checkbox"/> Adequate natural ventilation provided <input type="checkbox"/> Artificial ventilation <input type="checkbox"/> Inadequate ventilation	0 1 2 3			
<b>Session content</b>	0 1 2			
Lighting in mortuary <input type="checkbox"/> Adequate natural lighting provided <input type="checkbox"/> Adequate artificial lighting <input type="checkbox"/> Inadequate artificial light	0 1 2			
Size of building allocated for a mortuary <input type="checkbox"/> Adequate <input type="checkbox"/> Not Adequate	0 1 2			
The floor layout of mortuary <input type="checkbox"/> Concrete and smooth <input type="checkbox"/> Concrete with potholes <input type="checkbox"/> Earthen floor	0 1 2			

Walls erected for mortuary <input type="checkbox"/> Plastered and painted <input type="checkbox"/> Not painted	0 1 2			
The general state of cleanliness of the workplace <input type="checkbox"/> Very clean <input type="checkbox"/> Fairly clean <input type="checkbox"/> Dirty <input type="checkbox"/> Very dirty	0 1 2			
Isolation of bodies/corpse in the mortuary <input type="checkbox"/> Well arranged <input type="checkbox"/> Fairly arranged <input type="checkbox"/> Poorly arranged <input type="checkbox"/> Very poorly arranged	0 1 2			
Nonpharmaceutical Interventions/clothing NPIs in use in mortuary <input type="checkbox"/> Helmet <input type="checkbox"/> Mask. <input type="checkbox"/> Gloves <input type="checkbox"/> Overalls <input type="checkbox"/> Boots Anti-mist goggles	0 1 2			
State of repair of NPIs in the mortuary <input type="checkbox"/> New <input type="checkbox"/> Fairly new <input type="checkbox"/> Old <input type="checkbox"/> Very old	0 1 2			
First aid kit in mortuary <input type="checkbox"/> Accessible <input type="checkbox"/> Not accessible	0 1 2			
If present, the state of the equipment <input type="checkbox"/> Fully equipped <input type="checkbox"/> Fairly equipped <input type="checkbox"/> Poorly equipped	0 1 2			
Presence of warning signs in the mortuary <input type="checkbox"/> Yes <input type="checkbox"/> No	0 1 2			



Presence and type of fire extinguishers in the mortuary <input type="checkbox"/> Present <input type="checkbox"/> Not present <input type="checkbox"/> Water type <input type="checkbox"/> Carbon type <input type="checkbox"/> Chemical type	0	1	2			
If the extinguisher is present is it <input type="checkbox"/> Serviceable <input type="checkbox"/> Non-serviceable	0	1	2			
Recreational facility is available in the mortuary for mortuary service providers on night duty. <input type="checkbox"/> TV room <input type="checkbox"/> Indoor games <input type="checkbox"/> None	0	1	2			
Presence of elbow taps for washing hands in public mortuary <input type="checkbox"/> Present <input type="checkbox"/> Absent	0	1	2			
Ablution /Sanitation facilities (water splashing, pit latrine) in mortuary <input type="checkbox"/> Not provided <input type="checkbox"/> Provided an adequate <input type="checkbox"/> Good state of maintenance <input type="checkbox"/> Poor state of maintenance	0	1	2			
Presence of a waiting room for visitors affected by medico-legal cases <input type="checkbox"/> Provided <input type="checkbox"/> Not provided	0	1	2			
Educative material / medico-legal posters in strategic places <input type="checkbox"/> Provided <input type="checkbox"/> Not provided	0	1	2			
Reports or notices on the Disposal of unclaimed bodies <input type="checkbox"/> Inspection reports <input type="checkbox"/> Autopsy reports <input type="checkbox"/> Risk management reports <input type="checkbox"/> Health and safety reports <input type="checkbox"/> Others (specify)	0	1	2			

Total score = \_\_\_\_\_ of \_\_\_\_\_ maximum indicated = \_\_\_\_\_%

Expert communication skills

1. Maintained good eye contact
2. Used active listening—nonverbal cues
3. Had warm, accepting body language
4. Mainly used open-ended questions
5. Avoided interrupting
6. Used summaries and reflections

**APPENDIX X: Amputated Hands And Adult Unclaimed Corpses Drowned In  
Water Bodies To Conceal Forensic Identification**



Source: (Kassie *et al.*, 2018)

**APPENDIX XI:IMPROVED MODERN MOBILE EMBALMING  
MACHINEFOR DEVELOPING COUNTRIES**



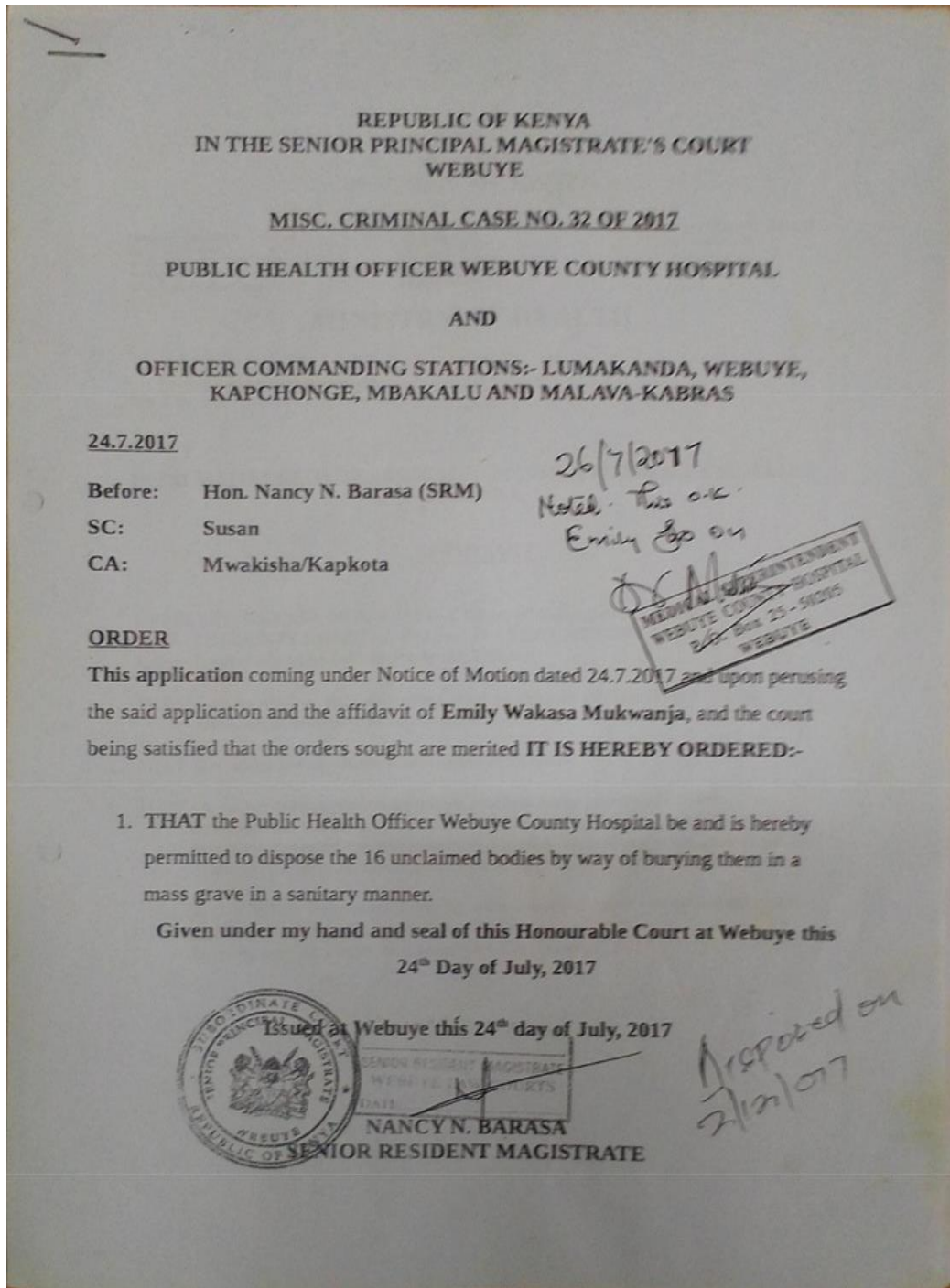
Source: (Tier 4 Public Facility Mortuary in Kenya, 2022)

**APPENDIX XII: Typical Embalming By Arterial Puncture to Improve  
Mortuary Hygiene & Sanitation**



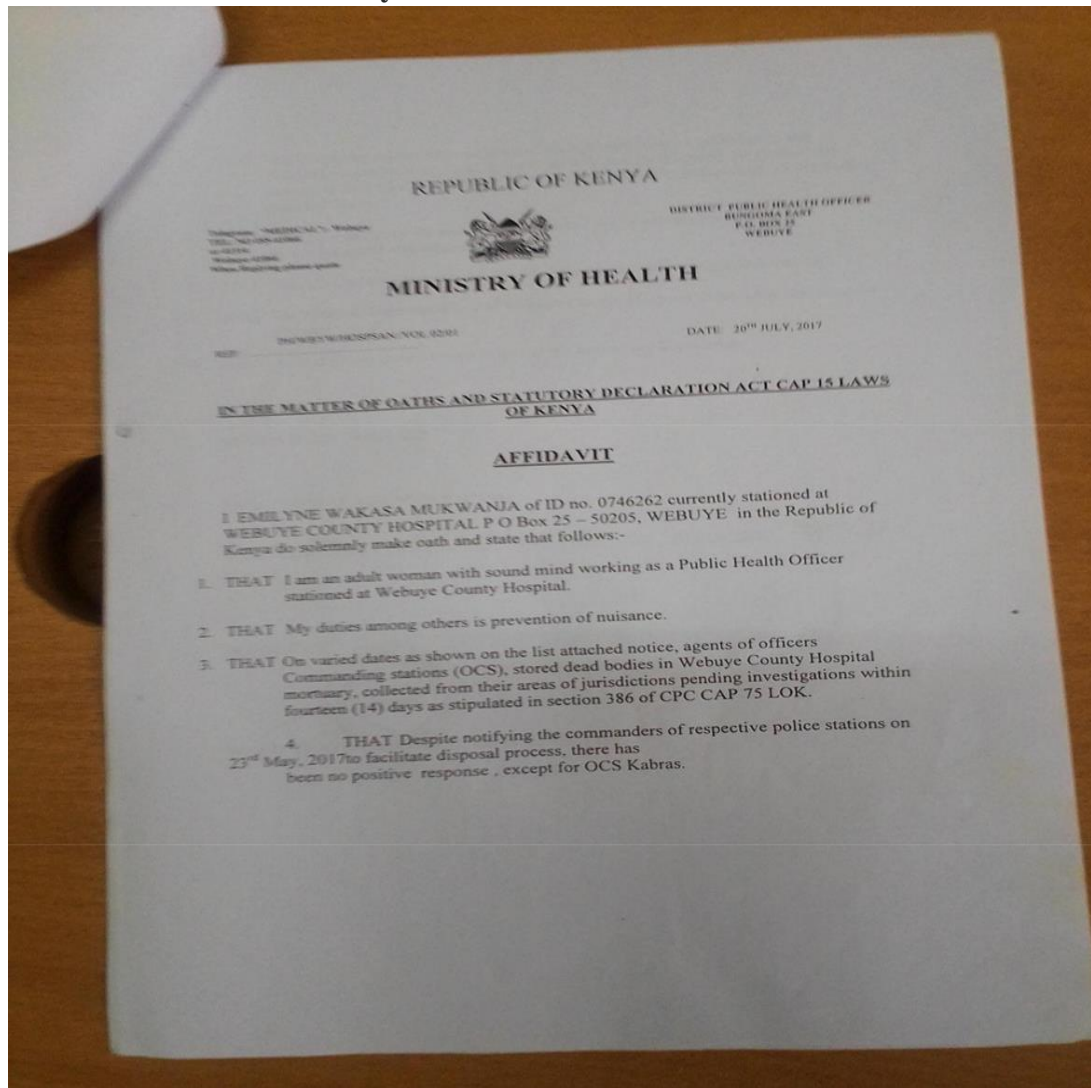
**Source: (Level 5 Facility Mortuary in Kenya, 2022)**

**APPENDIX XIII: Sample Of Court Order To Enable Justice Accountability for Mass Grave Disposal**



Source: (Pilot Study Facility, 2022)

**APPENDIX XIV: Sample of Affidavit Raised In Facility To Process Court Order By Resident Magistrate For, Consents, Justice and Accountability of Human Remains**



**Source: (Pilot Study Facility, 2022)**

**APPENDIX XV: Mitochondria Dna Bone Grinding Mill Connected to Liquid Nitrogen Gas**



**Source(Silali *etal*, 2016)**

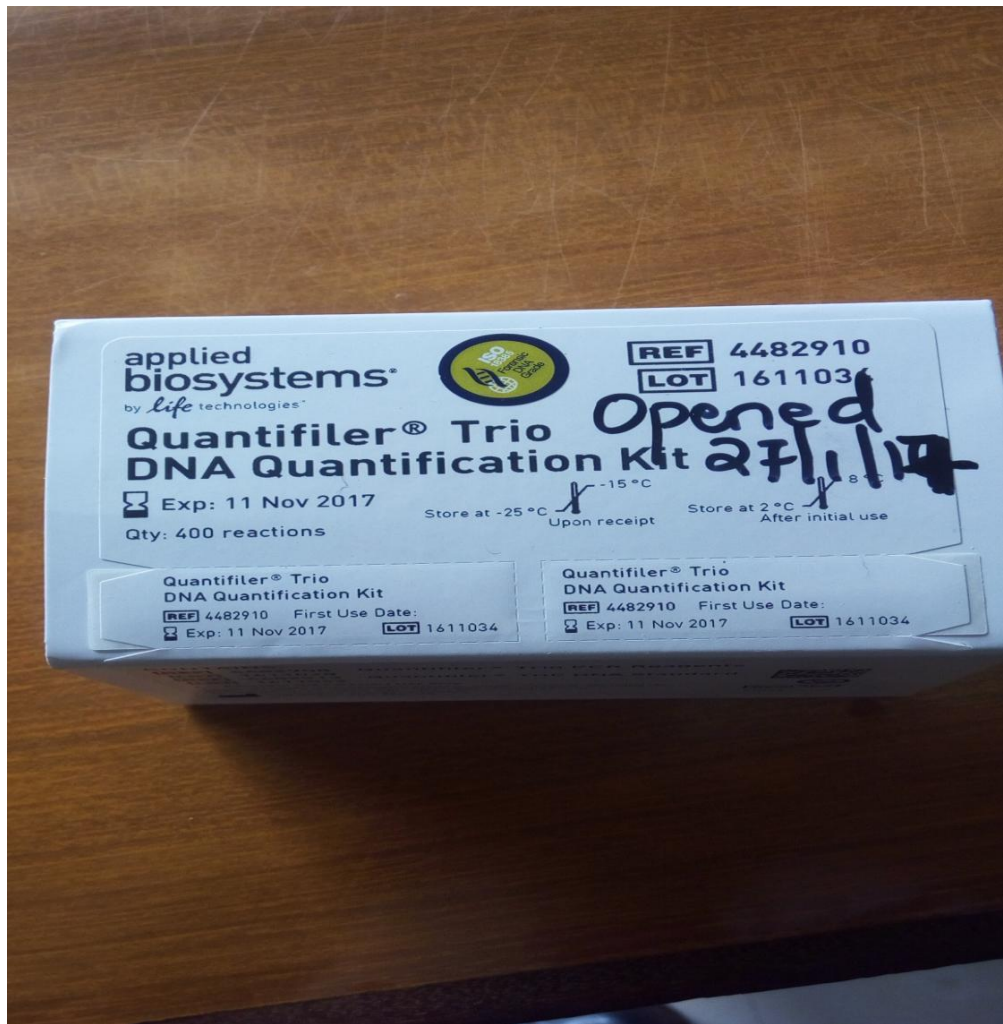


**APPENDIX XVI: Liquid Nitrogen Connected on Transfer Lines to enable  
Dna Sample Processing From Bones At Very Low Temperatures**



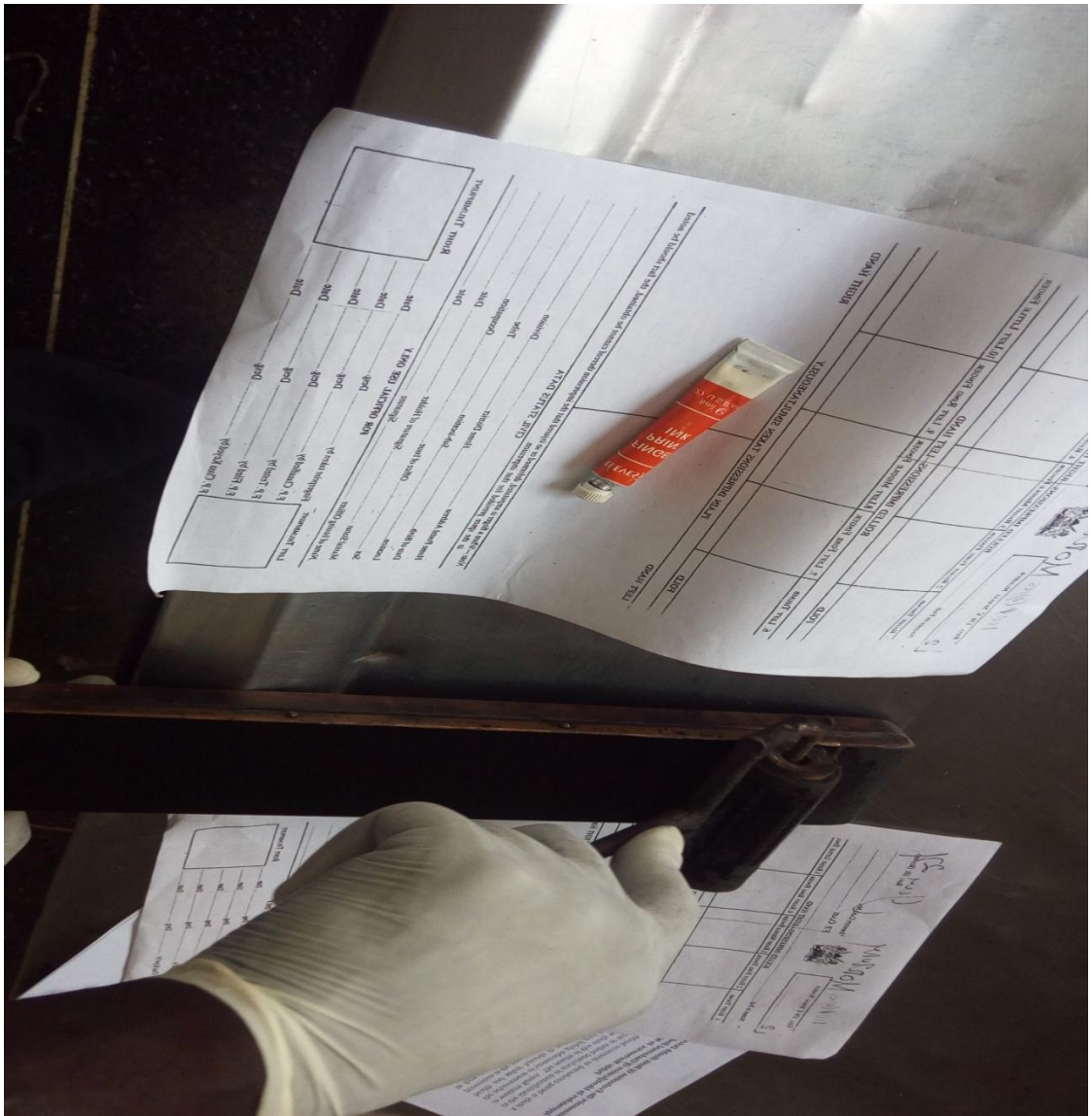
Source (Silali *etal* 2016)

**APPENDIX XVII: Dna Gender Quantifying Reagent Kit: Describe If The Unclaimed Corpse Is Male Or Female**



Source (Silali *et al*, 2017)

# APPENDIX XVIII: Latent Finger Print Abstraction



Source: (Silali *et al* 2017)

## APPENDIX XIX: Interpol Yellow View Notices Uploaded To The Internet.

### INTERPOL YELLOW VIEW NOTICES TO POPULATION HEALTH

View and search public Yellow Notices for missing persons

7921



Notices

Total number of public Yellow Notices in circulation:

Yellow notices, uploaded at secured central point to enable NOK, search locate unclaimed corpses or missing persons both juvenile, and adults identify persons who are unable to identify themselves or deceased respectively,

This site displays up to 160 notices per search result. Please refine your search criteria to find the notice you are looking for.

Search results: 7921



Source: Interpol (2016)

**APPENDIX XX: Sample Of Notice Board Notification To Population Health Of Unclaimed Corpses Due To Mass Disposal**

Email: [mdhnaairobi@yahoo.co.ke](mailto:mdhnaairobi@yahoo.co.ke)



**COUNTY HEALTH SERVICE**

**PUBLIC NOTICE**

**FROM: HOSPITAL MANAGEMENT**

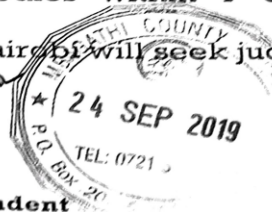
**DATE: 24<sup>TH</sup> SEPTEMBER 2019**

**RE: DISPOSAL OF UNCLAIMED BODIES**

The following unclaimed bodies are lying at the hospital's from the date of admission awaiting collection. Pursua Health Act Cap 242(Subsidiary; Public Health (Public M 1991(2).

Interested members of the public are asked to identify below named bodies within 7 days, failure to wh Government of Nairo of will seek judicial authority for dis

**Dr J M Karani**  
**Medical Superintendent**  
**Mbagathi Hospital**



(Source MOH, 2019)

**APPENDIX XXI: Proper Unceremonious Mass Grave Disposal of Unclaimed Corpses**



Source: University express (2015)

**APPENDIX XXII: Improper Unceremonious Mass Grave Disposal Of Unclaimed Corpses**



Source: University express (2015)