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MINISTRY OF HEALTH, COMMUNITY DEVELOPMENT, GENDER, ELDERLY AND CHILDREN

NATIONAL GUIDELINES FOR OPERATIONS OF MORTUARY SERVICES



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NATIONAL GUIDELINES FOR OPERATIONS OF MORTUARY SERVICES

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ABBREVIATIONS AND ACRONYMS

ADDS	Assistant Director Diagnostic Services
ADRRH	Assistant Director Regional Referral Hospitals
BMC	Bugando Medical Centre
CoAg	Cooperative Agreement
DCS	Director of Curative Services
DED	District Executive Director
DRRH	Dodoma Regional Referral Hospital
DSS	Diagnostic Services Sections
GEMS	Guidelines for Establishment of Mortuary Services
GOMS	Guidelines for Operations of Mortuary Services
HEPA	High-Efficiency Particulate Air
HLS	Head of Laboratory Services
KCMC	Kilimanjaro Christian Medical Centre
MD	Medical Doctor
MoHCDGEC	Ministry of Health, Community Development, Gender, Elderly and Children
NBTS	National Blood Transfusion Service
NHLQATC	National Health Laboratory Quality Assurance and Training Centre
NLQO	National Laboratory Quality Officer
ORCI	Ocean Road Cancer Institute
PHLB	Private Health Laboratories Board
TWG	Technical working group
UDOM	University of Dodoma



FOREWORD

This National Guideline for Operations of Mortuary Services (GOMS) has been prepared by the MoHCDGEC for the benefit of all people living in Tanzania. They are for use by those involved in the biosafety and biosecurity, Quality, procurement, design, management and commissioning of public healthcare infrastructure for a mortuary. It is also a useful information and reference to private sector healthcare providers.

This National Guidelines for Operations of Mortuary Services is laid out in ten (10) chapters. Chapter One gives an overview of introduction, a situation analysis of mortuary services in Tanzania, management and administrative services, human resource, mortuary functions, infrastructure, mortuary financing and services, mortuary types, ranking by regions and by health centre per region on Mainland Tanzania. The scope of this Guideline covers hospital and stand-alone mortuaries, and funeral home both in public and private sectors. The Guideline also covers funeral services limited to mortuary supplies, Biosafety and biosecurity, human resources, infrastructure and transportation requirements. The chapter also gives description of mortuary, policy and service, applicable legislations and international guidance, infection prevention and control legislation, building legislation and practice policy and guidelines, international design guidance, coordination and services in the context of Mainland Tanzania.

Chapter Two describes operational requirements for planning and designing, introduction and location of mortuary and access routes within a facility. Chapter Three gives guidance of safe calculation of mortuary capacity depending the level of health facility and community factors. Chapter Four gives guidance how to select body-storage systems, while in Chapter Five minimum mortuary layout plans are given. Chapter Six gives guidance on minimum mortuary equipment requirements for the provision of quality services to clients and next-of-kin. Chapter Seven gives guidance of minimum mortuary staffing requirements and staff training needs. Mortuary staff have often been untrained and unqualified, and working on experience gained over time or older age health care workers.

Chapter Eight gives guidance on staff and visitors' movement within a mortuary. At all times visitors must be accompanied by a mortuary staff. Chapter Nine describes the daily mortuary operational requirements for mortuary services, biological safety and handling dead body, environmental control, general handling of spillage, finishing to floors and walls, post-mortem examination equipment and fixtures, ventilation, air conditioning, refrigeration equipment design and installation, security arrangements and information security. Chapter Ten describes daily operational



function of mortuary, health and safety, waste management and maintenance requirements. References and further reading and note pads are also provided in the Guidelines.

Use of this guideline does not dissolve professional responsibilities of the implementing parties, and it remains incumbent on the relevant authorities and professionals to ensure that these are applied with due diligence, respect for the deceased, and where appropriate, deviations processes are exercised.

The development process adopted by the Technical Working Group (TWG) was to consolidate information from a range of sources including local and international literature, expert opinion, practice and expert group workshop/s into this document. The MoHCDGEC, will be responsible for the periodic review and formal update of this document and related tools.

The guideline is for public and private reference information and for application by MoHCDGEC in the planning and implementation of public sector mortuary services; will be applicable to the planning, design and implementation of all new public-sector building (including additions and alterations to existing facilities).

I would like to commend Directorate of Curative Services/Diagnostic Services Section for taking the technical lead towards the development of this Guideline for those intending to Establish Mortuary Service in Tanzania.

Lastly, appreciations go to the facilitator, who has worked in partnership with government agencies, partners, technical and support staff who contributed their expertise in the development of this guideline.

Therefore, this guideline should be used for daily operations, and when alterations and upgrading of any existing mortuary facility is required.



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The Ministry of Health, Community Development, Gender, Elderly and Children (MoHCDGEC) in collaboration with CDC/PEPFAR through the One-Cooperative Agreement (CoAG) developed this guideline for Mortuary Services. Sincere thanks go to the DCS, ADDS and Head of Laboratory Services for identifying the critical need for improved condition of mortuaries in Tanzania.

In particular, the MoHCDGEC appreciates the technical contributions from the following institutions: Muhimbili National Hospital, Ocean Road Cancer Institute (ORCI), Kilimanjaro Christian Medical Centre (KCMC), Bugando Medical Centre (BMC), Dodoma Regional Referral Hospital, Tarime District Hospital, National Blood Transfusion Service (NBTS); Private Health Laboratories Board (PHLB), National Public Health Laboratory (NPHL), University of Dodoma (UDOM) and District Executive Directors of Ruangwa and Tarime for allowing their staff to participate in this important activity.

I would like to commend Diagnostic Services Section under the Directorate for Curative Services for taking the technical lead towards the development of this Guideline for those intending to establish Mortuary Service in Tanzania.

Appreciations go to the facilitator, who spent time, expertise and worked in partnership with government agencies, partners, technical and support staff, in the development of this guideline.

Lastly, it is not possible to mention each and every individual who contributed to this guideline, but I extend my thanks to all the participants mentioned in **Table 6** for their professional contributions.



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TERMS AND DEFINITIONS

For the purposes of this Guideline, these terms and definitions will apply:

TERMS	APPLICABLE DEFINITION
A work-station	refers to a surface ergonomically dimensioned for use from the seated position. This is normally 750mm high
Anatomic pathology	refers to a medical specialty that is concerned with the diagnosis of disease based on the macroscopic, microscopic, biochemical, immunologic and molecular examination of organs and tissues
Autopsy	refers to a post-mortem medical examination that may involve full or partial dissection of the body, imaging of the body, external examination and review of the records and collection of appropriate samples.
Autopsy room	refers to a facility, attached to a mortuary, which is used for the performance of investigations into the cause of death. It comprises an autopsy theatre, change room and observation area.
Autopsy theatre	refers to a room specifically designated for dissection of the body.
Biomedical engineer	refers to an engineer/technician managing medical equipment used for diagnosis, treatment and care of patients
Biosafety	refers to containment principles, technologies, and practices implemented to prevent unintentional exposure to pathogens and toxins, or their unintentional release
Biosecurity	refers to institutional and personal security measures designed to prevent the loss, theft, misuse, diversion, or intentional release of pathogens and toxins
Body Cabinets	refers to refrigerated body cabinets, or refrigerated cabinets with shelves or drawers, used for storing a dead body in the mortuary
Body display room	refers to a mortuary show room for identification of dead body or for showing last respect
Body holding rooms	refers to a room for keeping the body temporarily before being prepared for autopsy or release
Body lifts	refers to mortuary equipment for lifting a dead body
Body load surges	refers to sudden increase in number of dead bodies
Body preparation room	refers to the part of a mortuary used for the receipt and dispatch of dead body and preparation of body for viewing.
Body storage area	refers to a place where a dead body is stored
Body storage facility	refers to equipment, tools of infrastructure used for



	storing a dead body
Body storage system	refers to method of storage of a dead body in a mortuary either using a refrigerated body cabinets or cold room; or a combination of both cold room and body cabinets
Body viewing area	refers to part of a mortuary that provides access for viewing of the deceased.
Case load	refers to the number of dead bodies stored
Case profile	refers to a subject or individual requiring public attention or notice; or the status of the individual especial before dying
Change room	refers to a separate room within the autopsy suite used to change into autopsy theatre clothing.
Clinician	refers to a medical doctor or medical practitioner
Containment facility	refers to the part within the demarcated zone in which the most malodorous activities occur. This facility includes the decomposing body' post-mortem examination room, airlock anteroom, and a decontamination unit each for men and women. The containment facility is sealed off from the rest of the demarcated area
Cultural concerns	refers to relating to the habits, traditions, and beliefs of a society or community:
Demarcated area	refers to the demarcated area, including the post-mortem examination rooms and all supporting functional spaces is the area where most sensitive, costly and specialised processes occur.
Dignity of deceased	refers to the principle that a body is treated with the respect and dignity befitting any person prior to death
Disaster	refers to an event such as an accident or a natural catastrophe that cause damage or loss of life in large numbers
Dissection room or suite	refers to post-mortem examination area or suite
Downdraft post-mortem examination table	refers to workbenches with built-in ventilation to capture dust, smoke, and fumes and draw them away from the material being worked on. They typically consist of a perforated surface whose underside is connected to a ventilation or dust collection system, to draw material through the holes and away from the work
Ergonomic	refers to an applied science concerned with designing and arranging things people use so that the people and things interact most efficiently and safely. — called also biotechnology, human engineering, human factors
Forensic autopsy	refers to an examination performed on a body under the law to determine cause of death.



Forensic Medicine	refers to a branch of science and medicine involving the study and application of scientific and medical knowledge to legal problems, such as inquests, and in the field of law.
Forensic Pathologist	refers to medical practitioner or professional specialized in forensic pathology
Forensic pathology	refers to is pathology that focuses on determining the cause of death by examining a dead body
Funeral home	Refer to place where a funeral director works and where dead people are prepared for burial or cremation.
Gurneys	refers to a light bed on wheels, used to lift and/or move dead body in a mortuary; or a flat table, or a light frame covered with cloth, which has wheels and is used for moving dead body or people who are ill or injured
Hermetically sealed plastic body bags	refers to an air tight closed plastic body bags; or plastic bags that are so tightly closed that no air can leave or enter it.
High risk autopsy	refers to autopsies known to or suspected to pose significant infectious, chemical, biological or radiation hazards.
High risk disease	refers to a killer disease which is easily spread or transmitted, usually through air, and may have no treatment. e.g. Ebola.
Homicide	refers to the act of one human killing another. Homicides can be divided into many overlapping legal categories including murder, manslaughter and justifiable homicide e.g. killing in war.
Hopper	refers to a large tube, wide at one end, through which large amounts of water is moved from one container to another; or used to move or slide the dead body into the cabinet.
Hospital autopsy	refers to an examination performed with permission from the relatives and/or next-of-kin.
Infants	refers to a baby or a very young child below one year old
Inherent redundancy against failure	refers to a safety mechanism for mortuary body storage that inherently responds in a way that will cause no or minimal harm to the equipment, environment or to the dead body
Laboratory scientist	refers to health laboratory practitioner or professional with a bachelor degree in medical laboratory sciences
Laboratory specialist	refers to health laboratory practitioner or professional with a Master's of Science (MSc) or Doctor of Philosophy (PhD) in medical laboratory sciences
Laboratory technologist	refers to health laboratory practitioner or professional with a diploma or advanced diploma in medical laboratory sciences



Large scale storage	refers to storage of large number of dead bodies in mortuary
Level I	refers to dispensaries and health centres
Level II	refers to district and regional hospitals
Level III	refers to Specialised, Zonal and National hospitals
Long term body storage	refers to storage of the dead body in the mortuary for longer periods beyond one week or seven days
Long-term stay	Refer storage/ preservation of dead body More than 14 days; for medico-legal investigation or other reasons
Medical Examiner	refers to is an official trained in pathology that investigates deaths that occur under unusual or suspicious circumstances, to perform post-mortem examinations, and in some jurisdictions to initiate inquests
Medico-legal	refers to something that involves both medical and legal aspects
Mortality rate	refers to death rate, is a measure of the number of deaths in a particular population, per unit of time. It is expressed as "the Number of deaths per 1,000 individuals per year".
Mortician	refers to a person whose job is to prepare a dead body for burial or cremation (burned) and sometimes to organize funerals
Mortuary	refers to Also a morgue is used for the storage of human corpses awaiting identification or removal for autopsy or burial, cremation or other method. A morgue is predominantly used in North American English, while mortuary is more common in British English
Mortuary assistant	refers to a certificate holder, mortuary practitioner with a two-year training in mortuary disciplines
Mortuary attendant	refers to a medical attendant with a formal in-service training to provide medical related services in a mortuary; or a person with at least one year training in mortuary disciplines
Mortuary layout	refers to Mortuary sketch drawing or mortuary design
Mortuary Procedures Manual	refers to document(s) that provide(s) policies and operating procedures for the mortuary. The document and any manual may be in hard copy or electronic formats.
Mortuary technologist	refers to a diploma holder, mortuary practitioner with a three-year training in mortuary disciplines
Natural death	refers to A death from natural causes which are determined to have been the cause of illness or an internal malfunction of the body not caused by external forces
Neonates	refers to a baby who is less than four weeks old
Observation area	refers to the part of the autopsy suite that allows people not performing the autopsy to view the examination,



	usually with some form of barrier or separation from the deceased and allowing a different level of protective clothing.
Obstetrics & gynaecologists	refers to is the medical specialty that encompasses the two subspecialties of obstetrics (covering pregnancy, childbirth, and the postpartum period) and gynaecology (covering the health of the female reproductive system)
Pathologists	refers to an expert in the study of diseases, especially someone who examines a dead person's body and cuts it open to discover how they died
Pathology	refers to is the study of the causes and effects of disease or injury; or the study of disease in general
Physician	refers to A medical practitioner, medical doctor, or simply doctor, is a professional who practices medicine, which is concerned with promoting, maintaining, or restoring health through the study, diagnosis, prognosis and treatment of disease, injury, and other physical and mental impairments
Post-mortem examination	refers to Examination after death, which may include performance of an autopsy
Post-mortem examination	refers to a surgical procedure that consists of a thorough examination of a dead body by dissection to determine the cause, mode, and manner of death or to evaluate any disease or injury that may be present for research or educational purposes.
Post-mortem examination area or suite	refers to A room and its attached service rooms designed for the performing of post-mortem examinations
Procedure related deaths	refers to deaths due to medical procedures such surgical operation or medical treatment.
Prosector,	refers to a person who is well versed in anatomy and who therefore prepares a dead body for post-mortem examination.
Refrigerated Cabinets	refers to refrigerated body cabinets, or body cabinets; is a mortuary equipment with shelves or drawers, used for storing dead body
Short -term stay	Refer storage/ preservation of dead body up to 14 days
Short term body storage	refers to storage of the dead body in the mortuary within one week or seven days
Shower facilities	refers to a device that releases drop of water through a lot of very small holes for irrigation or washing the body.
Sluicing facilities	refers to a room or a special area with an artificial channel for carrying water, with an opening at one end to control the flow of the water used for cleaning



	mortuary instruments and linen.
Stand-Alone Mortuary	refers to facility offering mortuary services without being attached to hospital
Still births	refers to a foetal death at or after 20 to 28 weeks of pregnancy, resulting in a dead baby born.
Sudden death	refers to unexpected or unexplained death happening quickly and without warning
Suicide	refers to the act of intentionally causing one's own death
Temporary mortuary	refers to a temporary mortuary facility set up where there are fatalities following an emergency, disaster or epidemic. Also, serves to contain spread of disease when body is moved from one place to another.
Trolleys	refers to a table on four small wheels with an enclosed shelf used for serving carrying dead body
Unexpected/unexplained death	refers to unexpected sudden death that cannot be explained or attributed to any cause of death
Unnatural death	refers to A death falls within the accidental, suicidal homicidal, unknown (<i>sudden unexpected or unexplained</i>) and procedure-related categories, as further defined in the Regulations regarding the Rendering of Forensic Pathology Service and the Health Professions Amendment Act
Unnatural deaths	refers to Death that is not natural or not caused by a disease e.g. homicide or suicide



1. INTRODUCTION

The Ministry of Health, Community Development, Gender, Elderly and Children (MoHCDGEC), has the responsibility to supervise provision of safe and quality health care practices in the country. In order to do so the MoHCDGEC ensures that all health facilities follow the policies and guidelines stipulated.

The mortuary is a place of mystery, sadness, grief or repulsion and all hope, while alive, that they will never need to visit such a place. For families who have lost a loved one to a sudden death, this becomes a reality. Working in a mortuary is an extremely stressful experience, which is made worse due to the large number of people dying sudden violent deaths due to infectious diseases, trauma and the pitiable condition of mortuaries throughout the country.

Although the management of mortuary services fall under laboratory services, currently there is no specific guideline to provide guidance on the functions, safety, security and quality management for mortuary services in Tanzania.

The purpose of this Guideline, therefore, is to give guidance to any health facility and/or person that is willing to provide mortuary services in the country. The guideline provides for the standard requirements for the establishment of a mortuary or funeral home in Tanzania.

1.1 SITUATION ANALYSIS OF MORTUARY SERVICES IN TANZANIA

Mortuary services in Tanzania, where and have continued to be overlooked compared to other healthcare services, such as preventive and curative services including diagnostic and rehabilitative services, despite. The main challenges facing mortuary services can be categorized into: a) Management and administrative services, b) Human resource, c) Mortuary functions d) Infrastructure; and e) financing.

1.1.1 MANAGEMENT AND ADMINISTRATIVE SERVICES

Government health facilities have mortuaries from National levels to District hospital levels, except for some specialized national hospitals which share mortuary services with the nearby government health facility. Currently some of the Health Centres providing emergence obstetric care, have mortuaries.



On the other hand, only few private health facilities have mortuaries. The majority have either no mortuary at all or have just a room for storage of dead bodies. Furthermore, currently, there are no stand-alone mortuaries in the private sector as it is for the autonomous private health laboratories, instead, there are several private service providers owning funeral homes. The situation analysis that involved 15 private hospitals and 37 government hospitals showed that, 3 (20%) of private health facilities, did not have mortuary facilities; while 10 (66.7%) had just a room for storage of dead bodies, without refrigerated cabinets or cold room but just a room with air-conditioning set to the lowest temperature. On the other hand, 35 (94.6%) of the government health facilities had mortuaries. The government health facilities 2 (5.4%) that did not have mortuaries were among the 5 new formed regions which upgraded health centre or district hospital to a regional hospital level (**table 1** refers).

The management of these mortuary services, whether government owned or private health facilities, vary from one health facility to another. For example, in Government health facilities, mortuaries are managed under, among other sections/departments: a) Nursing Department, b) Surgical Department, c) Clinical Support Department, d) Laboratory Department, or e) Administrative Department (Public Private Partnership). The situation is worse in the Private Health Sector, where mortuary services are managed under the Security Guard Department (under the care of the Watchman), or Nursing Department (under the care of the Matron) or the Estate Department (under the care of the Estate Officer). The situation analysis that involved 15 private hospitals, and 37 government hospitals showed that, of the 12 private hospitals that had mortuary facilities, 9 (75%) of the mortuaries were headed by the mortuary in-charge, who reported to either the matron (25%), medical officer in-charge (16.7%) or health secretary (8.3%). On the other hand, of the 35 government hospitals that had mortuaries were headed by either medical attendant (48.6%) mortuary attendant (37.1%) or nurses (2.9%) who reported to either laboratory manager (88.6%), matron (2.9%) or Hospital management (2.9%) (**table 1** refers).

1.1.2 HUMAN RESOURCE

Human resource is the biggest challenge in the provision of quality mortuary services. This is explained by the fact that, almost all mortuaries have medical attendants referred to as mortuary attendants, since they provide mortuary services, but they have no any formal training background. In addition, only Zonal and National Level health facilities have pathologists providing mortuary



services, the rest of health facilities do not have either pathologists or trained mortuary practitioners to offer professional mortuary services. Furthermore, there is no any medical school or college that offer training for morticians or prosectors who could assist pathologists, or medical examiner, in managing the mortuary and performing post-mortem medical examination. A situation analysis involving 52 health facilities (private 15 and government 37) indicated that, of the 12 private health facilities and 35 government health facilities having mortuaries 9 (75%) of private mortuary staff were mortuary attendants while 30 (85.7%) were either mortuary attendants (48.6%) or medical attendants (37.1%) (**table 1** refers).

1.1.3 MORTUARY FUNCTIONS

The main functions of the mortuary are: a) Storage of dead body, b) Preservation of the dead body, c) Post-mortem examination, d) Death certification, e) mortuary information management system (Documentation and records) and f) epidemiological data, policy and planning and g) forensic research. Surprisingly, save for Zonal and National Health Facility Levels, most of the mortuaries at regional and district level are limited to: a) Storage of dead body, b) Preservation of the dead body, c) Post-mortem examination; and d) Death certification; while at the lower government health facility level and most of the private health facility level are limited to storage and death certification. Of the 52 health facilities involved in the situation analysis, 47 (90.4%) had mortuary facilities, 45 (86.5%) had storage facility for dead bodies, 37 (71.2%) had areas for body preparations and 26 (55.3%) facilities having mortuary services had either complete (27.7%) or incomplete (27.7%) post-mortem kits, suggesting that they provided post-mortem examination services. Interestingly only 3 (25%) of the private mortuaries had post-mortem kits whereas 23 (65.7%) of the government mortuaries had post-mortem kits suggesting that post-mortem examinations are usually done at the government mortuaries and hardly at the private mortuaries (**table 1** refers).

1.1.4 INFRASTRUCTURE

The standard requirements for mortuary infrastructure are: a building with at least four rooms for: i) office, ii) storage (dead body & supplies), iii) body preparation, and iv) mortuary data (documents and records). In addition, there should be separate washrooms for staff and visitors, as well as a waiting room and or viewing room. There should also be means of communication e.g. telephone and electronic data system; power supply with standby generator; and running tap water. On the contrary, most of the



private health facilities have only a single room for storage of dead bodies. Other infrastructure requirements are either missing or shared within the hospital facility. However, the current status of mortuaries in the country requires an urgent renovations or new constructions as most infrastructures were inherited from the colonial era. These guidelines are designed by the MoHCDGEC to improve these essential human health services.

1.1.5 MORTUARY FINANCING

Financing of the mortuary services is supposed to be under the Department of Curative Services through the Health Laboratory Services Sub-section. However, the health laboratory services subsection has many sub-sub-sections including: i) clinical laboratories, ii) public health laboratories, and iii) National blood transfusion services. Given the budget constraints, mortuary services in most cases fail to compete with other health laboratory sub-subsections, and therefore mortuaries receive very little budget or do not receive any budget. Health laboratory services also receive financial support from Development Partners either directly or through Implementing Partners, however, these financial supports do not include mortuary services, yet mortuary services are part of the laboratory services.

TABLE 1: Summary of situation analysis of mortuary services

Items	Public Health facilities		Private Health facilities		All Health facilities	
	n	%	n	%	n	%
Number of Health facilities	15	28.8%	37	71.2%	52	100%
	15	100.0%	37	100.0%	52	100.0%
Mortuary availability	12	80.0%	35	94.6%	47	90.4%
Body storage area	10	66.7%	35	94.6%	45	86.5%
Body Preparation	7	46.7%	30	81.1%	37	71.2%
Head of Mortuary	12	100.0%	35	100.0%	47	100.0%
Pathologist	1	8.3%	2	5.7%	3	6.4%
Laboratory Scientist	0	0.0%	1	2.9%	1	2.1%
Laboratory Assistant	0	0.0%	1	2.9%	1	2.1%
Mortuary Attendant	9	75.0%	13	37.1%	22	46.8%
Medical Attendant	2	16.7%	17	48.6%	19	40.4%
Nurse	0	0.0%	1	2.9%	1	2.1%
Mortuary management	12	100.0%	35	100.0%	47	100.0%
Laboratory	4	33.3%	31	88.6%	35	74.5%
Head of Laboratory services	1	8.3%	1	2.9%	2	4.3%
Matron	3	25.0%	1	2.9%	4	8.5%
Health Secretary	1	8.3%	0	0.0%	1	2.1%
Director of Nursing Services	0	0.0%	1	2.9%	1	2.1%
Hospital Management	0	0.0%	1	2.9%	1	2.1%



Nurse in-charge	1	8.3%	0	0.0%	1	2.1%
Medical Officer In-charge	2	16.7%	0	0.0%	2	4.3%
Post mortem kit	12	100.0%	35	100.0%	47	100.0%
Complete set	1	8.3%	12	34.3%	13	27.7%
Incomplete set	2	16.7%	11	31.4%	13	27.7%
No kit	9	75.0%	12	34.3%	21	44.7%

Source: MoHCDGEC 2020

1.2 MORTUARY SERVICES IN TANZANIA

In a recently conducted desk review of the current management structures and reporting levels for mortuaries in Mainland Tanzania,

According to Tanzania Population Estimator by January 10th 2020 the population of Tanzania was estimated at **58,919,572** with estimated death of 1,011 per day^{1,2}.

By January 2020, there were 510 mortuary types in the United Republic of Tanzania (Mainland and Zanzibar) at different levels of its health care delivery system: Health Centre 238 (46.7%), Faith Based 90 (17.6%), District 89 (17.5%), Private 32 (6.3%), Regional Referral Hospital 25 (4.9%), Stand-Alone 15 (2.9%), Military 10 (2.0%), Zonal 4 (0.8%), Specialised Hospital 4 (0.8%), National 3 (0.6%), Nursing Home 0 (0.0%) and Funeral Home 0 (0.0%) **Chart 2** refers. Furthermore, in the same period, there were 502 mortuary types on Mainland Tanzania at different levels of its health care delivery system: Health Centre 238 (47.4%), Faith Based 90 (17.9%), District 85 (16.9%), Private 32 (6.4%), Regional Referral Hospital 24 (4.8%), Stand-Alone 15 (3.0%), Military 9 (1.8%), Zonal 4 (0.8%), Specialised Hospital 3 (0.6%) and National 2 (0.4%). There were no Nursing or Funeral Homes with mortuaries **Chart 3** refers.

¹ <http://worldpopulationreview.com/countries/tanzania-population/>

² [World Population Prospects \(2019 Revision\)](#)



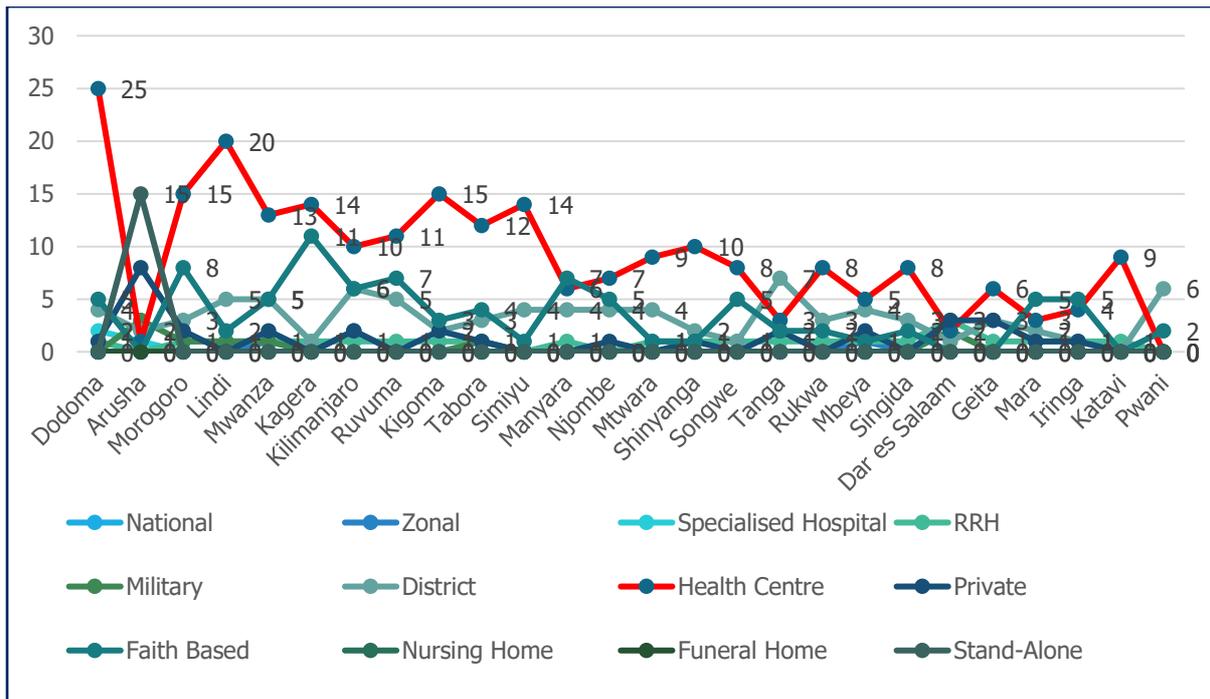


CHART 1: Mortuary types and ownership by regions, Mainland Tanzania

Source: MoHCDGEC 2020

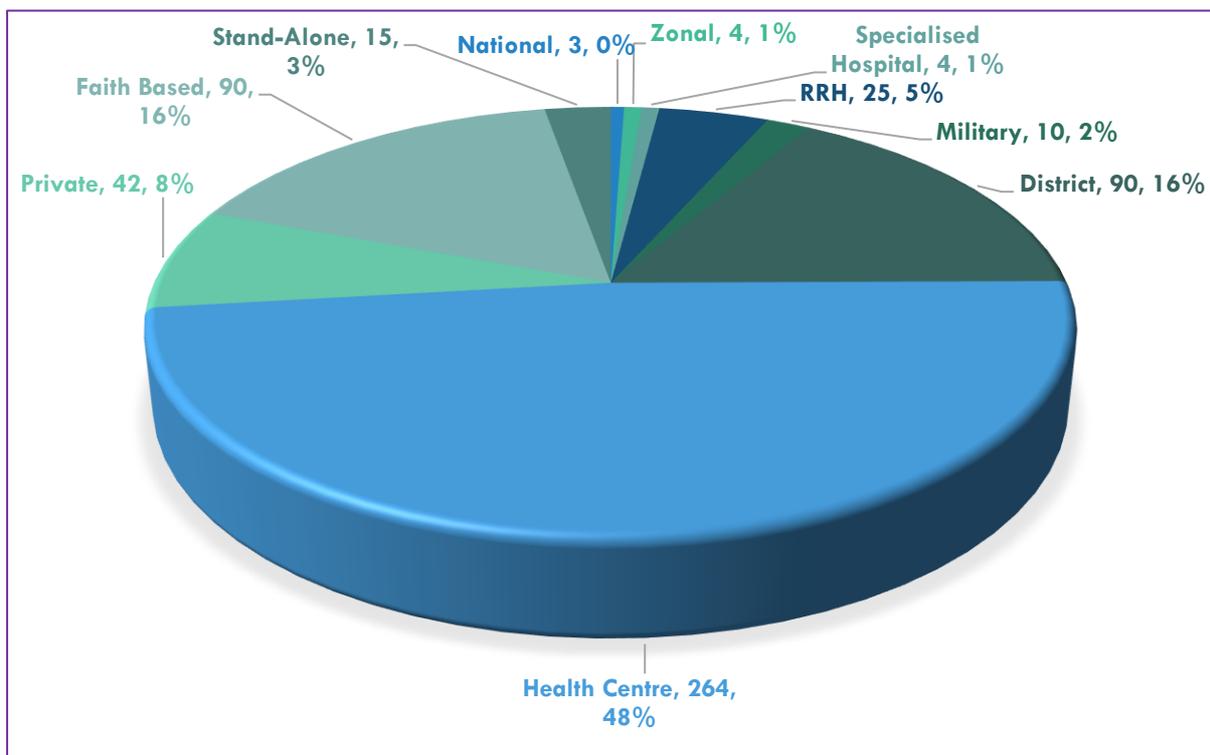


CHART 2: Mortuary types and ownership, Mainland Tanzania and Zanzibar



Source: MoHCDGEC 2020

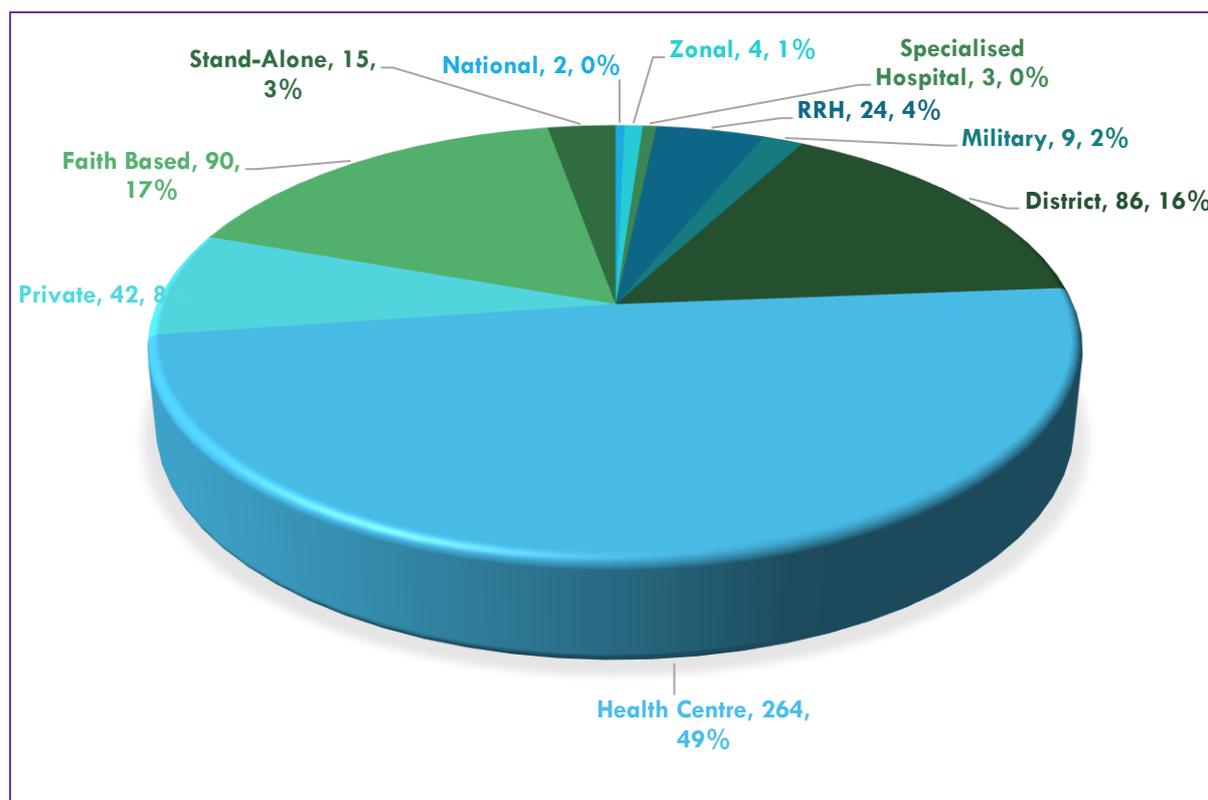


CHART 3: Mortuary types and ownership, Mainland Tanzania

Source: MoHCDGEC 2020

According to Tanzania population estimates for 2016/2019 (NBS), Dar es Salaam region had an estimated population of 5,781,557 meaning each mortuary served a population of 444,735, Mara region with an estimated population of 1,972,173, each mortuary served a population of 40,248, while Pwani region with an estimated population of 1,224,120, each mortuary served a population of 153,015.

1.3 MORTUARY TYPES IN TANZANIA

By January 2020, there were 510 mortuary types in the United Republic of Tanzania at different levels of its health care delivery system: Health Centre 238 (46.7%), Faith Based 90 (17.6%), District 89 (17.5%), Private 32 (6.3%), Regional Referral Hospital 25 (4.9%), Stand-Alone 15 (2.9%), Military 10 (2.0%), Zonal 4 (0.8%), Specialised Hospital 4 (0.8%), National 3 (0.6%), Nursing Home 0 (0.0%) and Funeral Home 0 (0.0%). Furthermore, in the same period, there were 502 mortuary types on Mainland Tanzania at different levels of its health care delivery system: Health Centre 238 (47.4%),



Faith Based 90 (17.9%), District 85 (16.9%), Private 32 (6.4%), Regional Referral Hospital 24 (4.8%), Stand-Alone 15 (3.0%), Military 9 (1.8%), Zonal 4 (0.8%), Specialised Hospital 3 (0.6%), National 2 (0.4%), Nursing Home 0 (0.0%) and Funeral Home 0 (0.0%)

1.3.1 RANKING MORTUARIES BY REGIONS

In ranking the number of mortuaries by regions, Dodoma ranked 1st with 38 (7.6%), Arusha and Morogoro ranked 2nd with 30 (6.0%), Lindi ranked 3rd with 29 (5.8%), Mwanza ranked 4th with 28 (5.6%), Kagera and Kilimanjaro ranked 5th with 27 (5.4%), Ruvuma ranked 6th with 24 (4.8%), Kigoma ranked 7th with 23 (4.6%), Tabora ranked 8th with 22 (4.4%), Simiyu ranked 9th with 19 (3.8%), Manyara ranked 10th with 18 (3.6%), Njombe ranked 11th with 17 (3.4%), Mtwara, Shinyanga, Songwe and Tanga ranked 12th with 15 (3.0%), Mbeya, Rukwa and Singida ranked 13th with 14 (2.8%), Dar es Salaam and Geita ranked 14th with 13 (2.6%), Iringa and Mara ranked 15th with 12 (2.4%), Katavi ranked 16th with 10 (2.0%) and Pwani was the 17th and ranked least with 8 (1.6%).

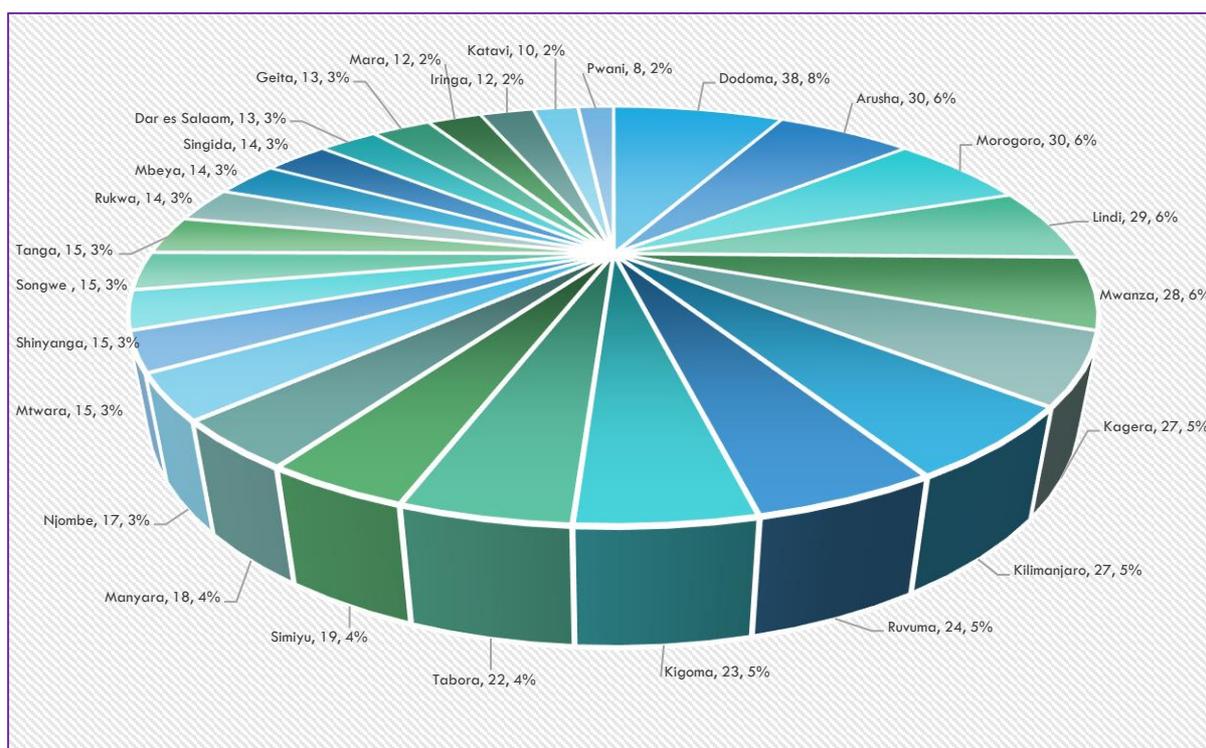


CHART 4: Ranking of mortuaries by regions

Source: MoHCDGEC 2020



1.3.2 RANKING HEALTH CENTRE MORTUARIES BY REGIONS

Health centres at the primary level of health care delivery system had the largest number of mortuaries at 238 (47.4%) when compared to other levels. When compared by regions, Dodoma ranked 1st with 25 (5.0%), Lindi ranked 2nd with 20 (4.0%), Morogoro and Kigoma ranked 3rd with 15 (3.0%), Kagera and Simiyu ranked 4th with 14 (2.8%), Mwanza ranked 5th 13 (2.6%), Tabora ranked 6th with 12 (2.4%), Ruvuma ranked 7th with 11 (2.2%), Kilimanjaro and Shinyanga ranked 8th with 10 (2.0%), Mtwara and Katavi ranked 9th with 9 (1.8%), Rukwa, Singida and Songwe ranked 10th with 8 (1.6%), Njombe ranked 11th with 7 (1.4%), Geita and Manyara ranked 12th with 6 (1.2%), Mbeya ranked 13th with 5 (1.0%), Iringa ranked 14th with 4 (0.8%), Mara and Tanga ranked 15th with 3 (0.6%), Dar es Salaam – the Commercial City ranked 16th with 2 (0.4%) and Arusha ranked 18th and also least with 1 (0.2%). Pwani does not have mortuary at health centre level.

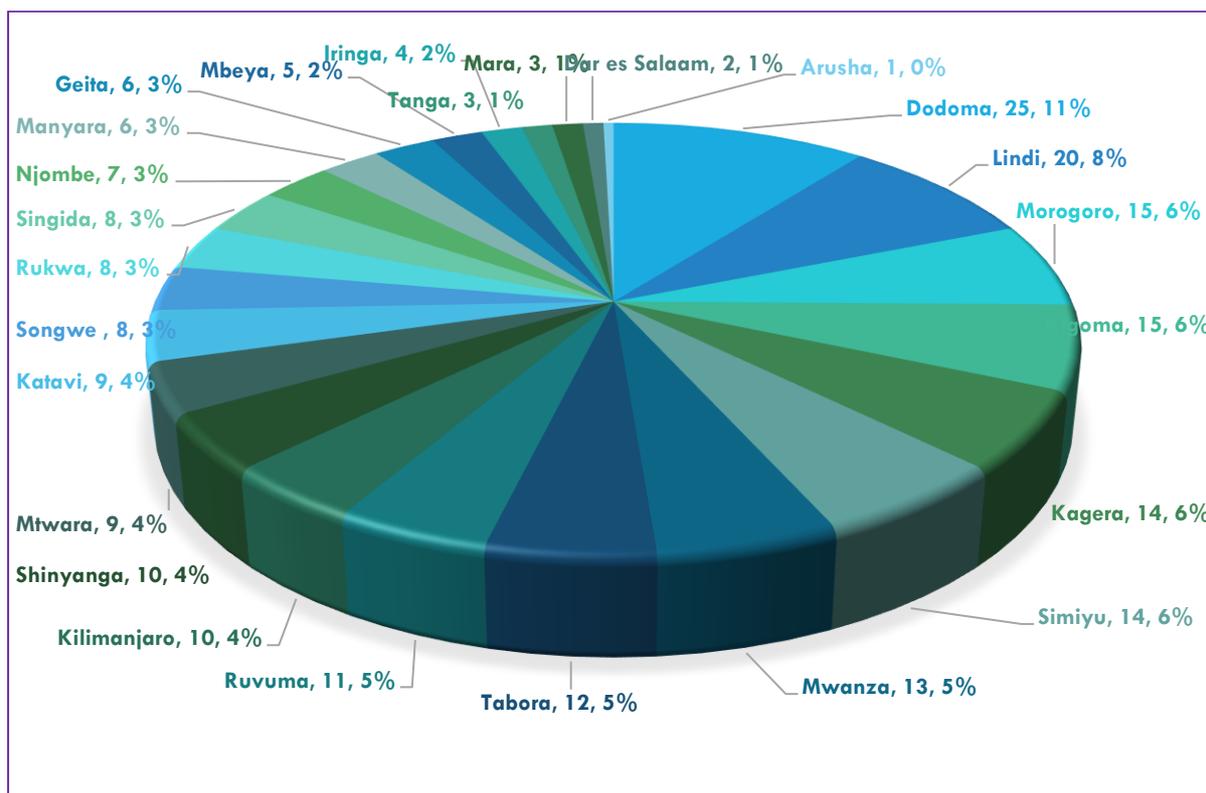


CHART 5: Ranking of health centre mortuaries by regions

Source: MoHCDGEC 2020



1.4 SCOPE

The scope of this Guideline covers a hospital mortuary, a standalone mortuary, and funeral home both in public and private sectors. The Guideline also covers funeral services limited to mortuary supplies, Biosafety and biosecurity, Human resources, infrastructure and transportation includes the following

- a) safe, secure and functional environment for visitors and staff;
- b) low capital and ongoing operating costs (service, staffing and maintenance);
- c) an environmentally appropriate design solution;
- d) a fully accessible, inclusive environment.

1.5 DESCRIPTION OF MORTUARY

A mortuary is a facility or building, or a room in a hospital or a facility outside the hospital either public or private, where a dead body is kept before being released for burial or cremation and sometimes for investigation to determine the cause of death, as in post-mortem examination, in a facility where anatomical or Forensic Pathologist, or a medical examiner is available.

The needs of hospital staff, attendants, relative of the deceased and other authorised persons must be considered in the design, layout and functionality of the unit to provide a safe and private environment.

The design must address the following:

- a) Number of bodies to be stored;
- b) Method of storage i.e. refrigerated cabinets, cold room, freezing capacity;
- c) Separation of entries for families to view/identify body;
- d) Delivery of body from inside the hospital or external delivery (whichever is applicable);
- e) Postmortem examination services (if applicable);
- f) Water and power supply;
- g) Mortuary waste management and disposal.

1.6 POLICY AND SERVICE

1.6.1 LEGISLATION, POLICIES AND INTERNATIONAL GUIDANCE

1.6.1.1. Legislative context in Mainland Tanzania



- a) The Public Health Act No. 1, 2009, Part IV (h) Funeral Homes, Mortuaries and Coffin Business; Schedules 129, 130, 131, 132 and 133;
- b) The Births and Deaths Registration Act (CAP 108), An Act to make provision for the registration of births and deaths and for the issue by medical practitioners of certificates of the cause of death;

The following documents, as amended (though not an exhaustive list) pertain and contain an additional resource of information which would supplement and provide the basis of a design brief. A finer sense of standard operating procedures and legislative context is likely to inform and enhance the design process, so the professional teams are encouraged to use these as an additional resource:

1.6.1.2. Infection prevention and control legislation

The National Infection Prevention and Control Policy and Strategy document makes specific reference to certain Acts and their relevant regulations, which bear relevance to the development and implementation of these health facility guidelines. These are:

- a) National Infection Control Prevention and Injection Safety (2014)

1.6.1.3. Building legislation

The following legislation and regulations impact and provide guidance on the provision and design of health care facilities as above.

1.6.1.4. Building practice policy and guidelines

- a) The layout must comply with the requirements for a person with disability in accordance with the Disabilities Act Accessibility Guidelines for Building Facilities (Act No. 2 and 2010);
- b) The building plans for mortuary types are levels are available at the MoHCDGEC-Planning and Building Unit.

1.6.1.5. International design guidance

- a) World Health Organisation (WHO), 2009. WHO policy on TB infection controls in health-care facilities, congregate settings and households. Geneva Switzerland: WHO;
- b) The assignment of an agent to a biosafety level for laboratory work must be based on a risk assessment. Such an assessment will take the risk



group as well as other factors into consideration in establishing the appropriate biosafety level;

- c) However, if particular experiments require the generation of high-concentration aerosols, then Biosafety.

1.7 COORDINATION

- a) Identify key stakeholders/ member of TWG to discuss implementation of mortuary services in Country;
- b) Schedule a quarterly meeting and meeting agenda with core functions and TOR of the TWG;
- c) Identify key intervention and operational activities during the implementation of the Mortuary services;
- d) TWG advises the MoHCDGEC through Head Laboratory Services/Assistant Director Diagnostic Services (ADDS).

1.8 SERVICE CONTEXT

TABLE 2: Minimum mortuary capacity at health facility levels I-III

Capacity	Level I	Level II	Level III
Body	1-10	10-20	>50
Training	NA	Yes	Yes
Conduct research	NA	Where applicable	Yes
Short-term stay (+2°C)	Yes	Yes	Yes
Long-term stay (-20°C)	NA	Yes	Yes
Autopsies (2°C-8°C)	NA	Yes	Yes

For the determination of capacity requirements of mortuaries refer to the recommendations further on in this document.

This guidance document relates to mortuaries located within and serving hospitals, with respect to persons that die due to natural causes in that hospital. This document excludes mortuaries dealing exclusively with cases that require medico-legal investigation of deaths from unnatural causes.

Post-mortem conducted in hospital mortuary should be limited to conducting investigations and procedures where no medico-legal investigation is required and death from natural causes is suspected.



Hospital death from natural cause and those suspected to be of unnatural cases should not be managed in the same facility unless the hospital mortuary is equipped to comply with the specific staffing infrastructure and operational requirements as they relate to the legislated forensic pathology services mandates, etc.

It is also noted that some hospitals may opt to contract out the removal and storage of decedent to private undertaker and these hospitals may require only the minimum in terms of refrigerated body storage.



2. PLANNING AND DESIGN

2.1 INTRODUCTION

All mortuary facilities within the country fall under Head of Laboratory Services in the Diagnostic Services Section of the Department of Curative Services, in the Ministry of Health Community Development, Gender, Elderly and Children (MOHCDGEC).

This document provides the minimum requirements for complying with the National Policies, Guidelines and Standards for Laboratory Services.

a) In planning and designing the mortuary facility, following team experts, at a minimum, should be involved or consulted:

- i. Anatomic pathologist;
- ii. Clinician (surgeon, obstetrics & gynaecologists or physician);
- iii. Architect;
- iv. Civil engineer;
- v. Biomedical engineer;
- vi. Laboratory practitioner (technologist, scientist or specialist);
- vii. Mortuary personnel (attendant, mortician, prosector, assistant or technologist).

b) In planning and designing for establishment of the mortuary facility, the following requirements should be considered:

- i. Type of service and package of care being provided;
- ii. Mortality rate;
- iii. Entry and Exit;
- iv. Discreet management of human remains;
- v. Size and dimensions of the actual facility;
- vi. Positioning of mortuaries within a hospital, or a community;
- vii. Finishing of surfaces in the facility;
- viii. Water-supply requirements;
- ix. Drainage requirements;
- x. Electrical supply and lighting requirements;
- xi. Installation requirements for equipment and services;
- xii. Body-storage requirements;



- xiii. Body-handling facilities;
- xiv. Body-holding areas;
- xv. Body-viewing area;
- xvi. Autopsy equipment (tables);
- xvii. Air conditioning and ventilation requirements (for infection and prevention control);
- xviii. Security of the facility.

c) Other items necessary to be considered include:

- i. The needs of visitors to the facility, particularly those wishing to, or who are required to, identify body;
- ii. The handling of body in the mortuary for the sake of human dignity.

NOTE 1: For forensic pathology mortuary, which is of medico-legal in nature; is to be attached to a laboratory facility, a forensic pathologist must be available, as well as legislation operational requirements have to be met. However, it is outside the scope of this section, which focuses on regular mortuary found in most hospitals in Mainland Tanzania.

NOTE 2: A number of principles apply for both hospital and forensic pathology mortuaries.

NOTE 3: Compliance with the requirements of the Occupational Health and Safety Act (Act No. 5 of 2003) and biosafety and biosecurity requirements are to be complied with at all times during the design of a mortuary facility.

2.2 LOCATION OF MORTUARY AND ACCESS ROUTES

a) The location of the mortuary should be such that:

- i. presenting either aesthetic, emotional or ethical problems for unrelated hospital staff, patients or visitors
- ii. Staff and Visitors be easily accessible to the mortuary, however, should be provided with clear and direct access to the mortuary upon arrival at the hospital, without having to walk unnecessarily through Hospital Departments or Units and related service providers

b) The location of the Stand-alone (autonomous) mortuary should be such that:

- i. Isolated from residential areas;



- ii. Fenced and provided with the necessary safety and security facilities.
- c) Where body is moved into or out of the mortuary:
- i. They should not be moved through general public-access areas;
 - ii. Appropriate routes should include technical service or goods corridor and through the hospital's support services yard;
 - iii. Special considerations should be given to plans for contingency access to the mortuary in the event of body-load increase, which may result from disasters;
 - iv. Body should not be held for longer periods in any locations between the body-holding rooms within clinical areas and the mortuary e.g. at the Clinics;
 - v. Where a mortuary unit is used jointly between the hospital and the local authority it is beneficial for the mortuary to be in a building separate from the main hospital building;
 - vi. The delivery of body to the mortuary and their subsequent removal from the facility is to be carried out in a manner that is not visible to the general public, preferably in a covered and enclosed area;
 - vii. While siting and access are important aspects when locating a mortuary, it is also important to provide the mortuary with pleasant surroundings in order to promote the dignity of those working in or visiting the mortuary.



3. MORTUARY CAPACITY

- 3.1 The layout and size of a mortuary determined by the number of bodies stored and whether body storage needs to be in refrigerated cabinets or in cold rooms.
- 3.2 In order to determine the storage capacity of a mortuary, it is recommended that historical data, where available, should be used.
- 3.3 In the Tanzanian context it is suggested that a storage capacity for the Health Centre Mortuary level should be between 6 and 12 bodies. On the other hand, the minimum storage capacity for any hospital mortuary set up should be at least 15 bodies (ref National Standard for Medical Laboratories)

NOTE 4: Requirements for emergency storage capacity related to disaster management is not the scope of this Section.

- 3.4 The body storage capacity required can be estimated on the basis of the number of deaths per year in the hospital (d), the length of time of holding (t) and the required body store occupancy rate (r).

Therefore, the number of body trays can be calculated from Equation:

$$SC = (d \times s) / (365 \times r)$$

Where:

SC = Storage Capacity (as determined by the number of body cabinets required).

d= Number of deaths per year requiring body cabinets

s = Average length of stay (in days)

r = Required body cabinets occupancy rate

For example

The number of body cabinets required in a hospital that records **6,935** deaths per year (from within the hospital including bodies delivered to the hospital), with the average length of time that a body remains in the mortuary being **3** days and with a body tray occupancy rate of **99%**.



$$\mathbf{SC} = (\mathbf{d} \times \mathbf{s}) / (365 \times \mathbf{r}) = (6,935 \times 3) / (365 \times .99) = 20,805 / 361.35 = \mathbf{57.576}$$

Source: <https://www.iussonline.co.za/docman/document/support-services/98-hospital-mortuary-services-gazetted/file>

With body cabinets generally having a storage capacity of three bodies per cabinet. The calculated storage capacity should be rounded up to the nearest multiple of three. Thus, in the above example **20** cabinets would be required. In case of storage capacity of four bodies per cabinet, **15** cabinets would be required.

3.5 The estimated storage capacity for bodies in a mortuary could be confounded by a number of local factors, such as

- a) Mortality rate from natural causes;
- b) Still births, neonatal and infant deaths;
- c) Mortality rate from highly infectious disease (Highly risk disease deaths require special storage facilities);
- d) Where the hospital is expected to place the body in cold storage until collection after medico-legal investigations, the following additional factors should be considered with respect to numbers of unnatural deaths (accidental, suicidal, homicidal, unknown and procedure-related deaths) anticipated at any particular hospital, including;
- e) Mortality rate from foul play (homicide) or suicide;
- f) Mortality rate from traffic or other accidents;
- g) Mortality rate from procedure-related deaths;
- h) Mortality rates from sudden, unexpected or unexplained deaths.



4. SELECTING BODY-STORAGE SYSTEMS

4.1 Body-storage systems are principally divided into cold rooms and refrigerated cabinets (body cabinets).

4.1.1 Differences within these system types occur where specific temperatures or sizes are required based on risk, need and capacity requirements.

4.1.2 Body cabinets should be arranged such that the lowest shelf would have capacity for the heaviest body

4.2 Where a system of functionally separate body cabinets is selected:

4.2.1 This system would have an inherent redundancy against failure, as the failure of a single unit would not necessarily imply a system failure;

4.2.2 In contrast, a cold room would require less maintenance and would have a lower frequency of failure.

NOTE 5: a single component failure could be critical if standby condensing unit is not installed.

NOTE 6: multiple-body cabinet systems are recommended for areas where expected maintenance response times would negatively affect the mortuary's operations

4.3 It is possible to have a requirement for a mixture of refrigerated cabinets (body cabinets) and cold rooms. This could be affected by local cultural requirements such as for families who object to body sharing storage space, the case load of the facility or the case profile;

4.4 Where there is a requirement for the long-term storage of body:

4.4.1 These are to be kept at a lower temperature than would be the case in a cold room;

4.4.2 In this instance, separate refrigerated cabinets are required.



NOTE 7: Long-term storage of body is most often required when a person dies and difficulty is experienced in locating the next of kin, as the person cannot legally be buried until this process has been completed.

- 4.5 Usually, smaller facility relies on refrigerated cabinets for the storage as this facility does not have the space or the need for the large-scale storage of bodies:
 - 4.5.1 Strictly speaking, any facility that has the requirement to store fewer than 12 bodies at any given time should use refrigerated cabinets;
 - 4.5.2 This gives the option of providing both short- and long-term storage with the smallest facility and equipment footprint.
- 4.6 Body suspected of having died of a high risk/ (priority) / pathogens and dangerous disease, require special treatment:
 - 4.6.1 This body should be stored in such a manner that it does not present a hazard to personnel working in the mortuary e.g. COVID-19, Ebola and other viral diseases
 - 4.6.2 Typically, this body should be stored at the same temperature as long-stay body, e.g. -20°C, and should be placed in hermetically sealed plastic body-bags.
- 4.7 Provision for the safe and secure cold storage of body parts should be provided.



5. MORTUARY LAYOUT

5.1 As mentioned, the layout and size of a mortuary is going to be determined by case load and whether storage is in body cabinets or cold rooms and available funding including future expansion.

NOTE 8: It is acceptable to have a mixture of cold rooms and body cabinets

5.2 In a mortuary facility, there are a number of separate sections that need to be considered other than the body-storage areas. These include:

- a) Reception area for members of the public who are required to visit the mortuary on official business, for example to identify body or to pay their last respects to a deceased person;
- b) Wash rooms for Male and Female staff;
- c) Wash rooms for Male and Female visitors;
- d) Visitors' administration space close to the reception area, where any administration or official business related to the identification of a body can be completed;
- e) Staff administration space close to the point where a body is delivered to the mortuary, so that pertinent documentation can be completed (e.g. during the delivery of the body, or when the body is released from the mortuary);
- f) Office space for pathologist to write up reports in instances where this could be required.

NOTE 9: This is dependent on the size of the mortuary as a small facility would not require separate room(s) for this function.

- g) Waiting areas for visitors to the mortuary;
- h) Viewing room, from where a body can be viewed through a curtained glass window between this space and the body-display room;
- i) Body-display room, where a body is placed for identification purposes.

NOTE 10: There should be access to this area via a lockable door to the viewing room especially when it is necessary for non-mortuary personnel to have direct access to a body in the viewing room.



NOTE 11: There should be access to this room from the body-storage area to allow body to be brought in for display purposes.

- j) Body preparation area, where a body that is delivered to the mortuary needs to be attended prior to it being placed in the viewing room;
- k) Shower facilities for Male and Female staff;
- l) Changing room for Male and Female staff;
- m) Storage space for equipment and clothing;
- n) Body-storage facility (cold room or refrigerated cabinets), depending on the type of body storage and the length of time that body are expected to be kept in the facility;
- o) Isolated storage space for body with suspected high-risk/Priority communicable disease;
- p) Post-mortem examination facility, when the cause of death is to be determined. This facility will differ from mortuary to mortuary, depending on whether forensic pathology service or standard medical post-mortem examination is conducted to determine the cause of death;
- q) When developing the facility layout, careful consideration should be given to the routes through the facility of staff, body and visitors. These routes should overlap as little as possible and there should never be a common entrance for body and staff or visitors;
- r) Storage space for body lift, gurneys and trolleys must be provided;
- s) Suitable sluicing facility is required to be able to clean equipment and fabrics after completion of any work in the mortuary facility.



6. MORTUARY EQUIPMENT REQUIREMENTS

- a) Equipment for storage and transportation of body should meet environmental hygiene standards, biosafety and biosecurity requirements;
- b) It should be noted that individual requirements may differ depending on the type of storage and the size and functions of the mortuary;
- c) Body-cabinet (refrigerated cabinets) selection and installation requires the following considerations:
 - i. Three or four-level body cabinets may be selected, which have a single door to give access to all of the body trays, for example where separation between bodies is required;
 - ii. Alternatively, cabinets that provide a single door for access to all the body trays are acceptable;
 - iii. It is critical that bariatric or obese body is catered for in the cabinet. In this case, the lower-level tray should be designed for this purpose;
 - iv. Special consideration should be given to the provision of capacity for storage of still birth, neonate and infant. The handling of these types of bodies is an especially sensitive and emotive issue.

NOTE 12: A separate storage and dedicated cabinet is, therefore, recommended for this purpose.

- v. Body lifts must be supplied to facilitate the loading of body into and removal of body from the cabinets. Body lifts help to preserve dignity when handling body, while at the same time making it easier and safer for mortuary personnel to handle body;
- vi. A clear space must be provided in front of the body cabinets to allow for the placing of a dead body into the cabinets. It is recommended that there be at least a 3m clearance between the front of the cabinet and any fixed structure. This is to accommodate whatever means of transportation is used to transport a dead body to the storage area and then load it into the cabinet;
- vii. The required cabinet size is fundamental when designing a mortuary. Where space is not too limited and there are no indications that there may be cultural and gender concerns relating to the storage of bodies together in a cold room, it is recommended that cold rooms be used. Cold rooms offer space savings when compared to body cabinets;



- viii. A temperature gauge must be installed close to the door of the facility to indicate the required body storage temperature 2-6°C. This gauge should have an alarm system connected to it to give a warning when there is an unacceptable change in temperature in the storage space. Typically, if the temperature should change more than 2°C above or below the set temperature, an alarm should be activated;
 - ix. Body cabinets and cold rooms must be supplied with electrical power from a reliable source. In addition, a standby generator should be available in case of power failure.
-
- d) A slop hopper is to be provided to allow for the cleaning of the body preparation and post-mortem examination areas, in particular after the completion of any work carried out in these areas;
 - e) Reliable water supply with running water and wash sinks should be available for cleaning of the body and hand washing;
 - f) Waste drainage system in all rooms should be in place
 - g) To allow for the rinsing of body parts and organs, during a post-mortem procedure it is important that suitable basins be provided in close proximity to a downdraft post-mortem examination table;
 - h) Where there is transition between "clean" and "dirty" areas, provision is to be made to allow for the cleaning of footwear in a "transitional" area. This helps to prevent the carrying of contaminants from dirty areas.



7. MORTUARY STAFFING REQUIREMENTS

Mortuary service is like any other part of health care delivery system; therefore, it requires the services of trained, qualified and disciplined staff. The requirement of staff in the mortuary differs from one facility to another depending on the level of the mortuary facility, type of work undertaken, the work load and the type of institute: whether teaching or non-teaching, and whether public or private (attached or autonomous mortuary):

- a) The mortuary should have adequate number of trained and qualified personnel, both medical and non-medical;
- b) The lowest cadre in mortuary profession should be mortuary attendants who is either medical attendant who have received specific in-service training on mortuary services or ordinary level certificate holder who have undergone at least one-year training in mortuary disciplines in a recognised institution. These should be available all the time in the mortuary and they should ensure that body are not wrongly delivered, preserved, stored or wrongly released. They should also be able differentiate between medico-legal and non-medico-legal body;
- c) Therefore, mortuary staffing according to level should be at least.

TABLE 3: Minimum staffing requirements for mortuary services

Category	Mortuary attendant	Prosector	Mortician	Anatomic Pathologist/Medical Examiner	Pathologists	Forensic Pathologist
Level I	2	0	0	0	0	0
Level II	5	3	3	1	0	0
Level III	9	4	4	0	2	1

NOTE 13: This guideline will not apply if the facility is not responsible for the activities of the certain level of the mortuary, this means that not every number of staff will apply to every facility.



7.1 STAFF TRAINING

Staff training for operations of quality mortuary services is very important and critical to giving assurance to families and next-of-kin that the body of their beloved one is treated with dignity. Therefore, a training curriculum must be used in approved training schools. Mortuary staff must be given opportunity to attend CPD courses, related meeting, attachment to busy mortuary and study tours.

- a) Develop Procedure Manual for mortuary services;
- b) Develop training materials for mortuary services;
- c) Define training modality either through CPD or any other preferred approach;
- d) Incorporate the mortuary services to the comprehensive supportive supervision tool to capture information and quality improvement of the mortuary services in the country;
- e) Develop mortuary services supportive supervision tool and mentorship;
- f) Job description of the staffing and SOPs should be available.



8. MOVEMENT WITHIN A MORTUARY

Planning and designing for a mortuary floor plan must take into considerations staff and visitors movement. While, staff are allowed access to all areas of the mortuary when performing their duties, these movements must be well coordinated to avoid injuries and exposure to infectious or dangerous pathogens for staff not involved in certain procedures. Visitors are not allowed access to restricted areas such as post-mortem/autopsy room areas without authorisation from facility management to observe a post-mortem examination procedure. Visitors must be accompanied by a staff while in the mortuary.

- 8.1 Movement of members of the public visiting the mortuary is to be restricted such that they do not have access to the body-preparation or autopsy areas (**Chart 1** refers);
- 8.2 The facility must be available within the mortuary where body identification can be conducted in a private and dignified manner. This viewing area should consist of a body-display with an adjacent viewing room, where the body can be viewed through a curtained shatter-proof glass window;
- 8.3 The requirement for a viewing and identification area also pertains to health facilities which outsource their mortuary services;
- 8.4 The viewing room and visitors' administration rooms should be designed to the extent that counselling can be conducted in a pleasant environment for bereaved persons;
- 8.5 The design of the viewing facility should allow adequate space for persons to view a body in a dignified manner;
- 8.6 Direct access to the body-display room from the viewing room should be provided via a lockable door, to allow visitors access to the body;
- 8.7 Wash room facilities should be available to members of the public who are required to visit the mortuary;



- 8.8 Where a dedicated room cannot be allocated for placing a body for viewing purposes, the persons who are viewing a body should be given a private space for viewing the body through a curtained shatter-proof glass window;
- 8.9 Adequate facility to accommodate at least 7 visitors should be provided;
- 8.10 Staff access to the mortuary facility is to be separate from the general public (**Chart 1** refers);
- 8.11 Mortuary staff change rooms should be provided with secure lockers for storage of street garments, laboratory coats and other personal protective equipment and valuables;
- 8.12 Mortuary staff may have completely separate wash room facilities from those used by the general public requiring access to the mortuary facility;
- 8.13 In a Stand-alone mortuary, the delivery to and removal of body from the facility may be via the same access point to the building;
- 8.14 A mortuary that forms an integral part of a hospital will require separate route for receiving body and the subsequent removal thereof;
- 8.15 A clear distinction should be made between "clean"," "dirty", "wet" and "transitional" areas. This is best achieved by creating:
- a physical "**RED LINE**" on the floor indicating the separation of these areas;
 - "**YELLOW LINE**" is used to demarcate "transitional" areas;
 - "**GREEN LINE**" is used to demarcate "clean" areas
 - receptacles for the collections of dirty clothing, etc., must be made available at the transition area from dirty to clean areas and in changing rooms.
- 8.16 A well-drained facility for washing vehicle; which has been contaminated with decomposed body or body fluids should be provided in an enclosed area, near to the mortuary.



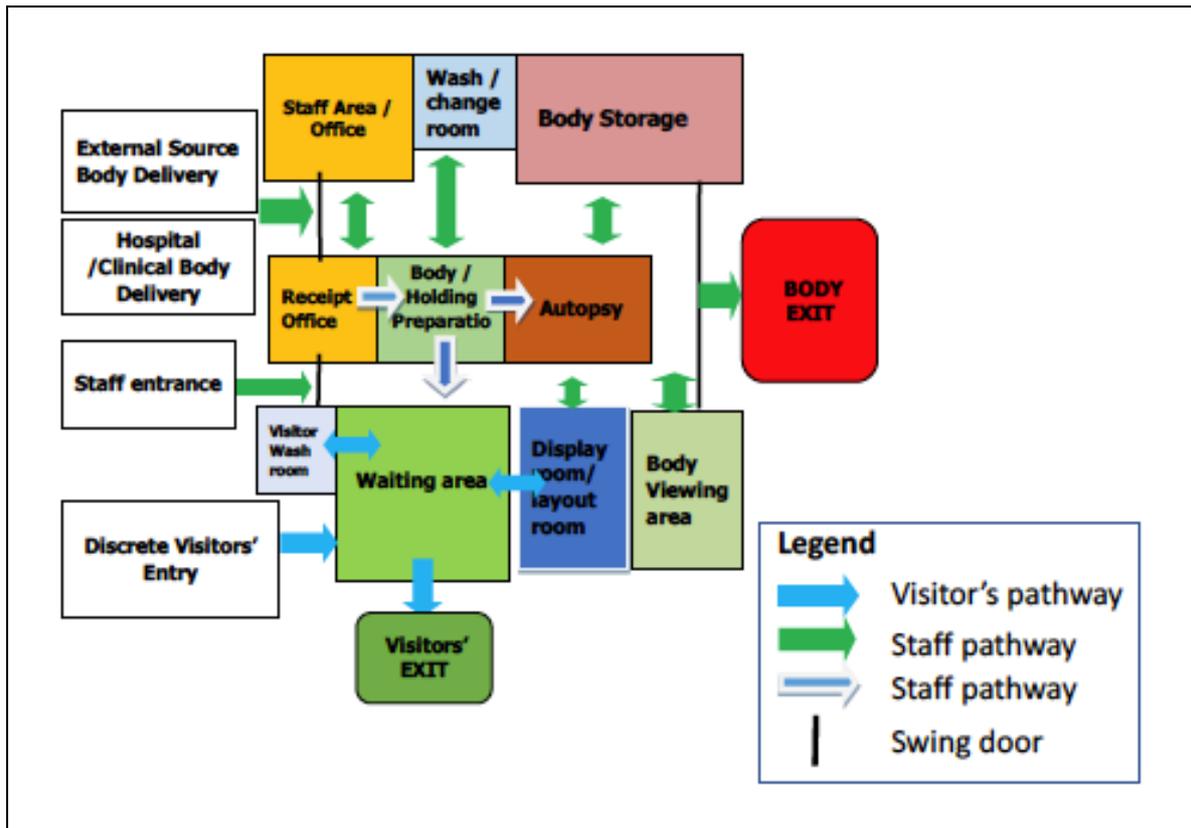


CHART 6: Mortuary workflow pathways and functional relationships

Modified from source: <https://www.iussonline.co.za/docman/document/support-services/98-hospital-mortuary-services-gazetted/file>



9. MORTUARY SERVICES

The mortuary is the service providing environment and therefore requires standard format of design and facility:

- a) Hygienic floor drains that are resistant to corrosion from blood and chlorine should be provided in all “wet areas” of the mortuary and should be directly connected to the sewer system. These areas include body preparation, post-mortem examination space, etc. These areas require thorough cleaning after every procedure, using large quantities of water and decontaminating and disinfecting chemicals and soaps;
- b) Sluicing facility is to be provided in both the body-preparation and post-mortem examination areas;
- c) Open floor channels should be avoided. Where this is not possible, these should be covered by durable, flush-fitted stainless steel grids;
- d) No sewer connections external to the mortuary services should be made to the line between the wet area drains and the main sewer system in order to prevent backflow to other areas;
- e) The provision of hot and cold water in the facility is important, with all basins, sinks, wash rooms and post-mortem examination tables being provided with both;
- f) Anti-backflow devices should be fitted to the water-supply lines serving mortuary table faucets to prevent backflow should supply water pressure fail;
- g) The source of electricity supply to the mortuary is mainly for refrigeration purpose and so it's should come from the main supply system of the hospital. However, there should be a back-up generator for the mortuary.

9.1 BIOLOGICAL SAFETY AND HANDLING DEAD BODY

9.1.1 BIOLOGICAL SAFETY

A dead body is potentially infectious; therefore, standard precautions should be implemented. Some of the infectious agents may be transmitted when a person is in contact with blood, body fluids or tissues of dead body of a person with infection diseases.

To minimize the risk of transmission of known and also unsuspected infectious diseases, dead body should be handled in such a way that staff



exposure to blood, body fluids and tissues is reduced. Rational approach should include staff training and education, safe working environment, appropriate safe work practices, the use of recommended safety devices including vaccination policy.

9.1.2 HANDLING A DEAD BODY

Dead body recovered from motor traffic accidents (land, sea and air), homicide, suicides, or with unclear history are potentially infectious.

Therefore, when handling dead body:

- a) Avoid direct contact with blood or body fluids from the dead body;
- b) Observe strict personal hygiene and put on appropriate Personal protective equipment (PPE) for example gloves, water resistant gown/plastic apron over water repellent gown, and surgical masks, goggles or face shield;
- c) Make sure any wound is covered with waterproof bandages or dressings;
- d) Do's and Don'ts; e.g. Do not smoke, drink or eat; while in the mortuary working area;
- e) Do not touch your eyes, mouth or nose;
- f) Decompose or unknown body and those that will be transported for long distance should be bagged in biohazard bag;
- g) Attach an appropriate identity label preferably a bangle which is water/chemical resistant before storing the body in body cabinet/cold room;
- h) After handling the dead body personal protective equipment should be Remove. Then, hands should be washed with liquid soap and running tap water immediately and/or suitable disinfectant.

NOTE 14: For all un-natural deaths where necessary, appropriate authorities such as police force and local government officials must be informed.

9.3 ENVIRONMENTAL CONTROL

The mortuary working environment should be conducive for effectiveness of the services provided:

- a) Make sure that supply of disposable gloves, PPE, and alcohol-based hand rub (sanitizer) and disinfectant such as household bleach is readily available;



- b) After use, the disposable items such as gloves and protective clothing should be safely disposed of in appropriate plastic bag and/or colour coded bin;
- c) Linen contaminated with blood and/or body fluids should be laundered with hot water preferably in a washing machine, otherwise, they should be soaked in freshly prepared 0.5% of Sodium hypochlorite) for 30 minutes before washing (**Annexes 1, 2 and 3** refer);
- d) All contaminated surfaces should be wiped with 0.5% of Sodium hypochlorite, leave it for 15-30 minutes, and then rinse with water. Metal surfaces could be wiped with 70% alcohol.
- e) Surface visibly contaminated with blood and/or body fluids should be wiped with 0.5% of Sodium hypochlorite, leave it for 10 minutes, and then rinse with water.

NOTE 15: Household bleach is 5-6% Sodium hypochlorite, therefore a dilution of 1-10 (v/v) dilution of bleach to liquid is suitable for biological waste disinfection (**Annexes 1, 2 and 3** refer).

NOTE 16: Air exhausted from biosafety areas should be safely discharged to the outside with no chance for re-circulation or sucked back into the area or contamination of other indoor spaces. Exhausts from biosafety areas should be vented at 3m above the roof level. Where such measures are not possible, exhaust air should be filtered with High-Efficiency Particulate Air (HEPA). Exhausts from biosafety areas should include anti-backflow devices.

9.4 GENERAL HANDLING OF SPILLAGE

- a) Wear disposable gloves and protective coat;
- b) Use tongs/forceps to pick up broken glass and discard into SHARPS container;
- c) Cover spilled material with paper towels or other sorbent material;
- d) Add diluted disinfectant in sufficient quantity to ensure effective microbial inactivation;
- e) Dispose of spill clean-up and sorbent materials in autoclave bag;
- f) Wipe spill area with suitable diluted disinfectant;
- g) Autoclave contaminated spill clean-up materials and place autoclaved bag into opaque trash bag, taped close and dispose of as non-hazardous domestic waste;
- h) Wash hands with soap and running tap water when finished.



9.5 FINISHING TO FLOORS AND WALLS

Walls and floor coverings within the mortuary should be easily cleanable and impervious to liquids, staining and corrosion. Therefore:

- a) Floors are to be of such a nature that they are not easily damaged by wheeled items that are moved over them. Vinyl floor coverings are not considered to be resilient enough for this purpose;
- b) Epoxy floor coverings are preferred, as these are easily maintained and do not have joints in them where liquids can accumulate to become a health risk;
- c) Corners between walls and floors are curved to facilitate the cleaning of these areas. These curving details should be solid and continuous without hidden formwork and cavities;
- d) Walls are to be coated with hard-wearing and washable materials/paint with provision made for trolley bump-rails along walls exposed to high traffic. Wall coatings to be impervious to damage from trolleys and mobile equipment;
- e) Materials such as vinyl sheeting should not be used to cover walls in wet areas. The risk of microorganism growth between the sheeting and the wall presents a health hazard to personnel working in the mortuary wet areas;
- f) Due to the potential presence of water on flooring, it is essential that flooring be non-slip;
- g) Surface-mounted services should be avoided to ensure smooth and washable surfaces. Where surface mounting of piping is unavoidable, this piping should be mounted on batons, such that the space behind the piping is readily accessible for cleaning.

9.6 POST-MORTEM EXAMINATION EQUIPMENT AND FIXTURES

Post-mortem examination equipment should be durable and fixtures should minimise risk for injury. Therefore:

- a) Equipment for the storage and transportation of body should meet environmental hygiene standards;
- b) Post-mortem kit should be made of stainless steel. The kit should include the following basic instrument i.e. bone saw, breadknife, Enterotome Hagedorn needle, forceps, harmer with hook and skull chisel, scalpel handle, rib cutter and scissors where necessary skull saw;
- c) In the majority of instances a downdraft post-mortem examination table is required within a hospital mortuary facility. This table should be one



that is designed in such a way that there is a hot and cold water supply that is integral to table installation, as well as a drainage system that can automatically drain water/waste from the table to the sewer system of the facility;

- d) Post-mortem examination table should have an integrated ventilation extraction or “downdraft” system in order to trap unpleasant odours and infectious material that may emanate from a body. This can function to minimise the spread of any airborne pathogens from the body;
- e) Adequate stainless steel washing basins (at least one per post-mortem examination table) must be provided in close proximity to the post-mortem examination table for the use of personnel working in the facility;
- f) Electrical power must be provided from a waterproof single-socket outlet near the post-mortem examination table to allow for the safe use of any electrical equipment that may be required during a post-mortem examination;
- g) Lighting quality over the post-mortem examination table must be exceptionally good;
- h) Adequately sized worktops must be provided along the walls of the post-mortem examination area for equipment and specimens prior to storage;
- i) It is recommended that working surfaces of at least 50cm x 250cm be provided per post-mortem examination table;
- j) A balance table for a bench-top scale is required. The scale can be either permanently mounted on the work surface or stored in the post-mortem examination equipment store;
- k) A platform scale for measuring the weight of an entire body prior to any possible dissection/post-mortem examination work being conducted is to be accommodated;
- l) Lockable cabinets are required for the storage of post-mortem examination equipment, as well as for any personal protective equipment morticians or medical examiners may require;
- m) Trolleys for the transportation of body must be provided in the mortuary and adequate provision for the storage of these units must be available;
- n) The use of wood, such as for wooden doorframes, is not allowed in wet areas;
- O) Stainless steel bump-rails or plates should be fitted in areas prone to damage from trolleys. These devices are fitted such that they do not affect the integrity and clean ability of the walls and floors. These devices should not create crevices or gaps which could harbour pathogens or create a hygiene problem.



9.7 VENTILATION

Mortuary areas require good ventilation. The exhaust air is to be discharged to atmosphere such that it cannot be drawn back into the mortuary, any other ventilation inlet, or any indoor portion of the hospital. Therefore:

- a) All external ventilation openings should be fly- and vermin-proof;
- b) Exhausted air should not pose a hazard to any person who is outside the mortuary. Air exhausted from mortuary areas should be safely discharged to outside with no chance for re-enter or contamination of other indoor spaces. Where these precautions are by no means possible, exhaust air should be HEPA filtered;
- c) Sufficient ventilation is required for controlling harmful odours present in mortuary and should also provide a means of protection to personnel working in the facility from possible airborne infections originating from dead bodies;
- d) Airborne or nozzle spray-infection control is of particular concern and must be designed for in terms of the ventilation system. Tuberculosis, Hepatitis and HIV are among the most regularly encountered diseases in a mortuary in Tanzania and, as such, the spread of these pathogens beyond the mortuary, via a ventilation system, must be avoided by implementing the airborne-contamination control principles for high-risk areas in the ventilation system design;
- e) The ventilation system must be designed such that airborne pathogens that may be present in the body-holding area and post-mortem examination room do not contaminate the remainder of the mortuary facility;
- f) No recirculation of air extracted from the clinical areas is permitted;
- g) Air from public areas, with the exception of viewing rooms, may be recirculated where this is in accordance with the National Standard for Medical Laboratories 2017;
- h) Exhaust ventilation is to be designed in such a manner that this extracts from the areas with the highest risk of infection, while "clean" air is to be supplied into the lower-risk areas. This is to create a pressure cascade with cleaner areas being at a relatively higher air pressure than dirty areas;
- i) Air-supply monitors should be at a high level and the extraction monitors should be at a low level. The low-level extraction grills should not be more than 50 cm above the finished floor level of the room from which the extraction is taken. Low-level air-monitors positions should consider locations of water points and potential splashing during washing.



9.8 AIR CONDITIONING

The room temperature for both post-mortem and public in the mortuary must be conducive for work therefore there is need for environment temperature control:

- The mortuary and post-mortem examination area must have a temperature maintained between 18°C and 21°C;
- Public areas must be kept at a constant temperature between 21-24°C and 25°C.

9.9 REFRIGERATION EQUIPMENT DESIGN AND INSTALLATION

The main equipment used in the mortuary is the refrigerator, therefore it's maintenance is mandatory:

- a) Heat build-up within the mortuary, as a result of refrigeration potentially leads to equipment failure. All heat-rejection equipment associated with refrigeration in the body-storage facility must be located on the outside of the mortuary, in a well-ventilated space at the rear of the refrigerator. Compressors installed on top of body cabinets on the inside of the mortuary are not acceptable;
- b) Regularly serviced refrigeration equipment components should not be situated within the confines of the mortuary. Refrigeration technicians should not be required to climb onto or over a body cabinet to carry out any maintenance work. It is preferable to have refrigeration equipment situated in a separate ventilated area to the rear of the body cabinets. The designer is to refer to the selected heat-rejection equipment's installation manual to determine free space and ventilation openings required around this equipment, since these details can vary between system types;

NOTE 17: In a situation where maintenance technician has to come close to or near a body, prior counselling is to be provided to ensure privacy and confidentiality of what the technician might see in the mortuary.

- c) Gauges indicating the temperature within the body cabinet must be clearly visible above the door of the unit in order that this can be easily monitored;
- d) The acceptable average temperature within a normal body cabinet or refrigerated room is between 2°C to 6°C. In instances where a body has



to be kept for an extended period of time, a cabinet temperature of -20°C is required;

- e) In a facility where many bodies are kept, cold rooms for the storage of multiple bodies on trays is recommended;
- f) The materials used for the construction of the unit are to be of stainless steel, which offer better corrosion resistance to facilitate cleaning and long-term maintenance of the equipment;
- g) If a facility is required to collect and retain forensic evidence (e.g. clothing of deceased, refrigeration equipment should be provided for the preservation of these samples. Preferably this equipment should be placed in an area where it can readily be secured from unauthorized access and tampering.

9.10 SECURITY ARRANGEMENTS

Due to the medical and legal nature of the contents of a mortuary, it is essential that a mortuary has good access control and security systems. Therefore:

- a) Theft from a mortuary should be forecasted constantly by monitoring entrances and preventing free access to mortuary areas. This is especially important for the body-storage areas. Combinations of tag and biometric access-control systems are recommended;
- b) Door closers with a "hold-open" mechanism should be installed on the mortuary room doors. This enables doors to close automatically with normal traffic, but can also be held open when moving equipment or trolley through. Swing doors are recommended;
- c) It is recommended that a timed alarm be fitted to doors to ensure that they are closed shortly after any entrance or exit. This is to prevent the tendency of keeping doors open with door stopper;
- d) Body cabinet is to be fitted with locks to prevent the unauthorized opening of the unit to prevent theft of any personal items or body parts of the deceased;
- e) In instances where historical problems relating to unauthorized entry into mortuary is evident, it is recommended that closed-circuit TV systems be installed to help in monitoring and securing the facility.

9.11 INFORMATION SECURITY

To maintain the deceased confidentiality, all document and records must be kept in secured area; and should have a backup system. The security system



should be such that unauthorized access or modification of information is prevented.



10. OPERATION

The operation, planning, design, construction and commissioning of a mortuary should aim to provide:

- a) A safe, secure and functional environment for visitors and staff;
- b) Mortuary environment should be ideal to accommodate visitors and staff.
E.g. waiting area for visitors, public office and toilets;
- c) For staff, changing room with locked cabinet, toilet, tea room, rest room and office;
- d) Affordable and ongoing operating costs (service, staffing and maintenance);
- e) Staff should be according to the level of mortuary (for mortuary with autopsy services should have examining clinician, prosecutors, mortuary attendant and other supportive staffs also mortuary should have planned schedule for equipment's maintenance);
- f) An environmentally appropriate design solution;
- g) Mortuary should be fully accessible with inclusive environment;
- h) Floor and walls should not have sharp corners, micro joints spaces (smooth continues surface for easy cleaning) and benches should be smooth;
- i) Post-mortem examination room should have functional vacuum;
- j) Mortuary should:
 - i. Not be located near other public activities;
 - ii. Not be designed near disposal waste activities or extractors;
 - iii. Have area for assembly point, Enter/Exit or Emergence exit;
 - iv. Have adequate Light;
 - v. Have demarcated clean and dirty area;
 - vi. Have swinging doors;
 - vii. Have shower facilities – male and female;
 - viii. Have reliable and sustainable running tap water;
 - ix. Have a closed water drainage system;
 - x. Have power supply sockets, and cables away and/or protected from water.

10.1 DAILY OPERATIONAL FUNCTION OF MORTUARY

- a) Daily operational function of mortuary includes:



i. Receiving body

A body received into the mortuary either from within the health facility or from outside will be registered and tagged/labelled and recorded in the appropriate mortuary register and/or Mortuary Information System (MIS).

ii. Registration of dead body in the mortuary

Approved mortuary registers should be used (Four types of registers):

- a) register for receiving body from outside health facility;
- b) register for receiving body within the health facility;
- c) register for infants;
- d) register for medico-legal cases.

On registration, the following information should be in place e.g. age, sex if its facilities which facilities and if it is Police station in which station.

iii. Preserving of dead body in the mortuary

A body should be preserved in 2-8°C, or -20°C (frozen) for long stay or embalmed using 10% buffered Formaldehyde.

iv. Storage of dead body in the mortuary

Storage of the dead body at mortuary is used for the storage of human body awaiting identification or removal for autopsy or respectful burial, cremation or other method. If applicable in modern times corpses have customarily been refrigerated to delay decomposition.

Where Lockable storage should be used to keep safe the personal belongings of the deceased.

v. **Releasing of dead body from the mortuary**

- a) A body may only be released from the mortuary in accordance with approved releasing standard operating procedures, including identification of deceased by a close next of kin or relative, personal particulars of a person who is taking the body and place of burial.
- b) Post-mortem services and body preparations (washing, decoration) and sometimes reconstruction of a body;



vi. Teaching and research purpose

- a) Body and records can be used for teaching and research purposes for those that are in teaching institutions;
- b) This can be done during post-mortem examination and through the samples taken / body samples for physiological studies. Also, can be used by physicians and other scientists to study anatomy, identify disease sites, determine causes of death, and provide tissue to repair a defect in a living human being.

10.2 HEALTH AND SAFETY

Effort should be made to ensure that personnel working in the mortuary are provided with all required PPE, as this is an area where pathogens are present and present a health risk to staff. The following are of importance:

- a) Potential activities for health and safety:
 - employee training programmes;
 - accident reporting mechanism;
 - employee health;
 - occupational health service that support the ability to ensure compliance.
- b) Safety policies and procedures, including but not limited to general safety, chemical hygiene, fire safety, evacuation plan and disaster management and preparedness plan;
- c) Review and inspection of physical facility for safety issues and operational integrity;
- d) Annual review of safety compliance and safety plan;
- e) Exposure monitoring (formaldehyde, radiation, infectious disease):
 - i. Formaldehyde - vapour that arises from solution is pungent and irritant to eyes and respiratory tract even at low concentration. The exposure to formalin should be controlled as low as possible below maximum exposure limit of 2.5mg /m³;
 - ii. Radiation – where radioactive compound has been used for treatment or diagnosis during the life of the deceased under the examination may present a radiation hazard to the staff and people visiting the mortuary. The design of the facility should adhere to guideline set out in the ionizing radiation regulations;
 - iii. Infectious disease – infection risks arising from exposure to infectious agents, which might be present in body received for storage and post-



mortem. Infectious material may be dispersed in form of aerosols or body fluids. Infection may occur as a result of inhalation, ingestion, inoculation or splashing into the eyes. Staff and visitors should adhere on proper use of PPEs

- f) The following items should be available to staff as a minimum:
- i. Rubber aprons (or similar impervious material);
 - ii. Latex gloves (or similar impervious material);
 - iii. Mesh gloves in facilities where post-mortems are performed;
 - iv. Disposable gowns/ recycle gowns;
 - v. Safety glasses or full-face visors;
 - vi. Waterproof footwear;
 - vii. Face masks;
 - viii. Respirators with the appropriate filters must be available for use in high-risk situations;
 - ix. Storage space for PPE.

NOTE 18: No one should be permitted to enter the body storage and preparation areas without donning (wearing) appropriate gowns and footwear.

10.3 WASTE MANAGEMENT

- a) Waste arising in the mortuary and post-mortem rooms will fall into five categories:
- i. Disposable generally single-use items such as paper shrouds, swabs, dressings, disposable protective clothing and gloves;
 - ii. Human tissues and body;
 - iii. Discarded syringes, needles and other sharps;
 - iv. Discarded chemicals such as used fixatives solutions;
 - v. Clean waste arising from office activities (non-infectious).
- b) Waste in categories i)-iv) is both a potential risk to health and offensive for those who are required to deal with it prior to final disposal;
- c) For safe disposal, arrangements for clear segregation and appropriate containment of different types of waste, from source to disposal point are essential;
- d) Most of the items to be discarded come under clinical waste, where colour, coded containers are used:
- i. RED colour for highly infectious;



- ii. YELLOW colour for infectious;
 - iii. BLACK and/or BLUE colour for non-infectious;
 - iv. Safety box for sharps.
- e) In a mortuary and post-mortem room, two basic provisions are necessary to enable the safe management of waste. These are:
- i. A sluice for material suitable for direct discharge to the drains (subject to the consent of the appropriate water and sewage authority);
 - ii. Adequate secure storage space for material in bags, packages or drums awaiting removal for appropriate treatment and final disposal.

10.4. MAINTENANCE

When designing the mortuary facility, effort must be made to limit the amount of maintenance that would be necessary to keep it in good condition. Seamless surfaces for walls and floors are critical, as this will reduce ongoing maintenance costs. The following minimum requirements should be complied with:

- a) Seamless floor coverings required;
- b) Continuous coving with radius >50mm required between floors and walls;
- c) No sharp corners on any work surfaces that could injure people working in the area;
- d) Ceilings to be readily cleanable;
- e) Work surfaces are to be impervious to liquids and resistant to staining and corrosion;
- f) All equipment requiring calibration, such as refrigerators and scales, are to be attended to on an annual basis or when it is suspected per calibration schedule;
- g) Routine inspection, cleaning and maintenance of equipment record.

NOTE 19: MOHCDGEC, Planning Unit has developed approved minimum floor plans for Health Centre and Hospital levels (**Figures 1 & 2 and Tables 1 & 2** refer).

TABLE 4: Minimum requirements for mortuary premise at level I

No.	Description	Quantity
1.	Reception and Records	1 room
2.	Office for Mortuary quality officer and safety officer	1 room
3.	Office for data officer and archive officer	1 room
4.	Office for Pathologist /MD	NA



5.	Office for staff	NA
6.	Changing room for staff both male and female	2 rooms
7.	Tea Room	1 room
8.	Changing room for Pathologist	NA
9.	Toilet for staff both male and Female	2 rooms
10.	Toilet for client both male and female	2 rooms
11.	Cold room for cabinet (capacity of 1-10 bodes)	1 room
12.	Autopsy room	NA
13.	Sluice room	1 room
14.	Store room	1 room
15.	Lobby / body viewing room	NA
16.	Viewing area / room /Hall	1room

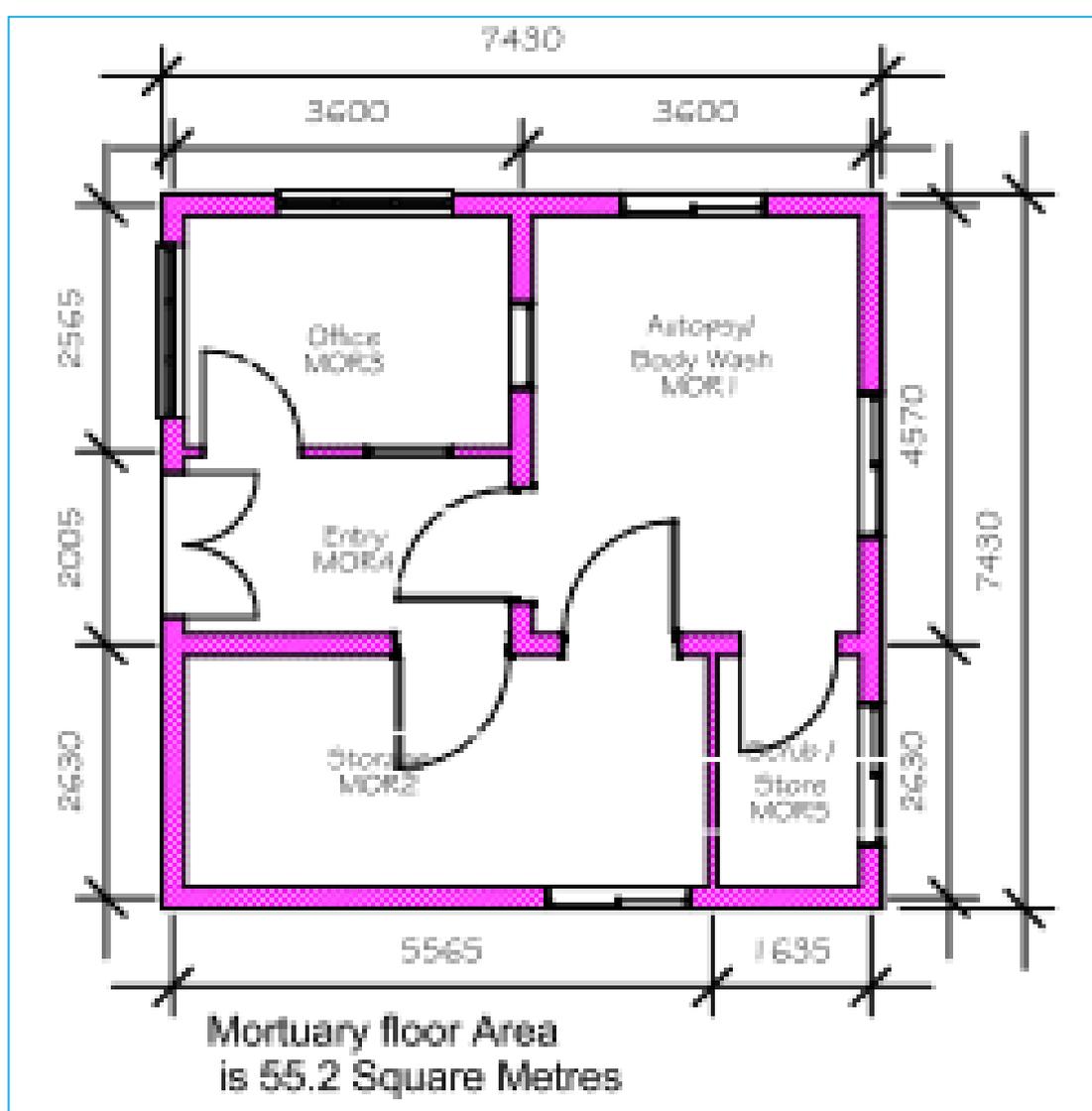


FIGURE 1: Approved minimum floor plan for level I mortuary

Source: MOHCDGEC: National Standards for Medical Laboratories 2017



TABLE 5: Minimum requirements for mortuary premise at level II

No.	Description	Quantity
1.	Reception	1 room
2.	Documents and Records	1 room
3.	Office for Quality Officer and Safety Officer	1 room
4.	Office for Data Officer and Archive Officer	1 room
5.	Conference room	1 room
6.	Mortuary attendants	5
7.	Prosectors	3
8.	Morticians	3
9.	Anatomic Pathologist	1 staff
10.	Officer Pathology	1 room
11.	Office for staff	1 room
12.	Changing room for staff both male and female	2 rooms
13.	Tea Room	1 room
14.	Changing room for Pathologist	1 room
15.	Toilet for staff both male and Female	2 rooms
16.	Toilet for client both male and female	2 rooms
17.	Cold room for cabinet (capacity of 1-10 bodes)	1 room
18.	Autopsy room	1 room
19.	Sluice room	1 room
20.	Store room	1 room
21.	Viewing area / room /Hall	1 room

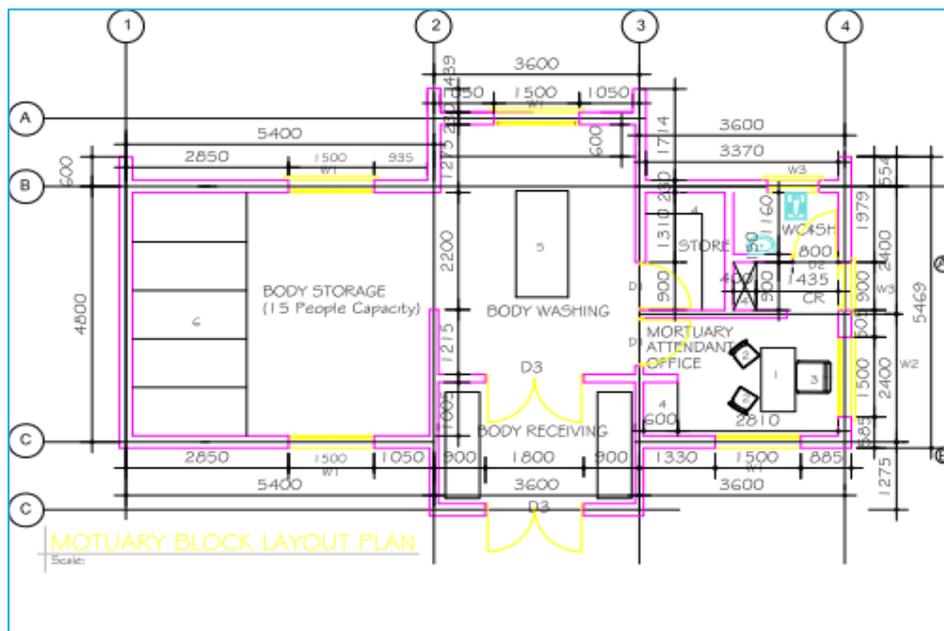


FIGURE 2: Approved minimum floor plan for level II mortuary

Source: MOHCDGEC: National Standards for Medical Laboratories 2017



TABLE 6: Minimum requirements for mortuary premise at level III

No.	Description	Quantity
1.	Reception	1 room
2.	Documents and Records	1 room
3.	Office for Quality Officer and Safety Officer	1 room
4.	Office for Data Officer and Archive Officer	1 room
5.	Conference room	1 room
6.	Mortuary attendants	9
7.	Prosectors	4
8.	Morticians	4
9.	Pathologists	2
10.	Forensic Pathologist	1
11.	Office Forensic Pathologist	1 room
12.	Office Pathology	1 room
13.	Office for staff	1 room
14.	Changing room for staff both male and female	2 room
15.	Tea Room	1 room
16.	Changing room for Pathologist	1 room
17.	Changing room for Forensic Pathologist	1 room
18.	Toilet for staff both male and female	2 rooms
19.	Toilet for client both male and female	2 rooms
20.	Cabinet (capacity more 50 bodes)	1 room
21.	Autopsy room	1 room
22.	Sluice room	1 room
23.	Store room	1 room
24.	Viewing area / room /Hall	1 room



TABLE 7: Detailed situation analysis of mortuary services in 52 health facilities

CATEGORY	MORTUARY AVAILABILITY	BODY STORAGE	CLIENT TOILETS	STAFF TOILETS	STORE	BODY PREPARATION	POST MORTEM AREA	OFFICE	HEAD OF MORTUARY	UNDER	POST MORTEM KIT
Dodoma	Yes	Yes	No	Yes	Yes	Yes	No	Yes	Medical Attendant	Laboratory	Non
Manyara	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	Medical Attendant	Laboratory	Incomplete
Tabora	Yes	Yes	No	No	No	No	No	No	Assistant Laboratory Technologist	Laboratory	Incomplete
Morogoro RRH	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	Mortuary Attendant	Laboratory	Incomplete
Amana RRH	Yes	Yes	No	Yes	Yes	No	No	Yes	Mortuary Attendant	Laboratory	Non
Mwananyama RRH	Yes	Yes	No	Yes	Yes	Yes	No	Yes	Mortuary Attendant	Supportive Unit	Non
Kigoma	Yes	Yes	No	Yes	No	No	No	Yes	Medical Attendant	Laboratory	Non
Mara	Yes	Yes	Yes	Yes	Yes	No	No	Yes	Medical Attendant	Hospital Management	Non
Pwani	Yes	Yes	No	Yes	Yes	Yes	No	Yes	Mortuary Attendant	Laboratory	Incomplete
Lindi	Yes	Yes	No	No	Yes	Yes	No	Yes	Medical Attendant	Laboratory	Incomplete
Mtwara	Yes	Yes	No	No	Yes	Yes	No	Yes	Medical Attendant	Laboratory	Incomplete
Iringa	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	Medical Attendant	Laboratory	Yes
Songwe	Yes	Yes	No	No	Yes	Yes	No	No	Mortuary Attendant	Laboratory	Non
Mbeya	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	Medical	Laboratory	Non



									Attendant		
Katavi	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	Medical Attendant	Laboratory	Yes
Mwanza	Yes	Yes	Yes	Yes	No	Yes	No	Yes	Mortuary Attendant	Laboratory	Yes
Singida	Yes	Yes	No	Yes	Yes	Yes	No	Yes	Mortuary Attendant	Laboratory	Yes
Ruvuma	Yes	Yes	No	Yes	No	Yes	No	Yes	Medical Attendant	Laboratory	Yes
Njombe	No	No	Non								
Simiyu	No	0	0								
Geita	Yes	Yes	Yes	Yes	No	Yes	No	No	Medical Attendant	Laboratory	Yes
Kagera	Yes	Yes	No	Yes	No	Yes	No	Yes	Mortuary Attendant	Laboratory	Incomplete
Shinyanga	Yes	Yes	No	Yes	Yes	Yes	No	Yes	Mortuary Attendant	Laboratory	Non
Arusha	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	Mortuary Attendant	Private	Yes
Kilimanjaro	Yes	Yes	Yes	No	Yes	Yes	No	Yes	Laboratory Scientist	Laboratory	Yes
Tanga	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	Mortuary Attendant	Laboratory	Incomplete
Temeke	Yes	Yes	No	Yes	No	Yes	No	Yes	Medical Attendant	Laboratory	
Rukwa	Yes	Yes	No	Yes	No	Yes	No	Yes	Medical Attendant	Laboratory	Yes
Muhimbili	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Nurse	Director, Nursing Services	Yes
Benjamin Mkapa	Yes	Pathologist	Laboratory	Yes							
Mloganzila	Yes	Mortuary Attendant	Laboratory	Yes							



Regency	No	No	No	Non								
TMJ	No	No	No	Non								
Hindu Mandal	Yes	Yes	No	Yes	No	Yes	No	Yes	Mortuary Attendant	Nurse In charge		Incomplete
Aga Khan	Yes	Yes	Yes	Yes	Yes	No	No	Yes	Mortuary Attendant	Laboratory		Non
St. Benedict Ndanda	Yes	Yes	No	Yes	Yes	No	No	Yes	Mortuary Attendant	Laboratory		Non
Nkinga	Yes	No	Yes	No	Yes	Yes	No	Yes	Mortuary Attendant	Laboratory		Non
Peramiho	Yes	Yes	No	No	No	Yes	No	No	Pathologist	Laboratory		Non
St. Gasper	Yes	Yes	Yes	Yes	No	Yes	No	Yes	Medical Attendant	Laboratory		Non
St. Francis	Yes	Yes	0	0	0	0	No	0	0	0	0	0
Haydom	Yes	Mortuary Attendant	Laboratory		Yes							
Arusha Lutheran	Yes	Mortuary Attendant	Nursing		NO							
Kabanga	Yes	Yes	No	Yes	Yes		No	Yes	Mortuary Attendant	Matron		Non
Ilembula	Yes	Yes	No	No	No	Yes	No	No	Mortuary Attendant	Health Secretary		Incomplete
Nyangao	Yes	No	Yes	Yes	Yes	No	No	No	Medical Attendant	Laboratory		Non
Mbeya Zonal	Yes	Yes	No	Yes	Yes	Yes	No	Yes	Mortuary Attendant	Laboratory		Incomplete
KCMC	Yes	Medical Attendant	Pathologist		Incomplete							
Bugando	Yes	Pathologist	Laboratory		Incomplete							
Kyela	Yes	Yes	No	Yes	No	Yes	No	Yes	Medical Attendant	Matron		Non
Murgwanza	Yes	Yes	Yes	No	No	Yes	No	No	Medical Attendant	Laboratory		Non
Igunga	Yes	Yes	No	No	No	No	No	No	Medical	Laboratory		Non



									Attendant		
Rabinisia	No	No	No								

Source: MOHCDGEC 2020



TABLE 8: Shows location of Regionalised Implementing Partners

No.	Implementing Partner	Regions
1	AGPHAI	Mwanza
		Shinyanga
		Mara
2	MDH	Dar es Salaam
		Kagera
		Tabora
		Geita
		Pwani
3	THPS	Above Site
4	UMB	TA and Above Site
5	BORESHA AFYA - SOUTHERN	Morogoro
		Iringa
		Njombe
		Mtwara
		Lindi
		Ruvuma
6	BORESHA AFYA - NORTHERN	Arusha
		Kilimanjaro
		Singida
		Manyara
		Dodoma
7	HJF-DOD	Mbeya
		Katavi
		Rukwa
		Songwe
8	AMREF HEALTH AFRICA	Tanga
		Simiyu
		Zanzibar

KEY:

TA = Technical Assistance

Above Site = Support to all regions

Source: PEPFAR/CDC 2020

NOTE 20: Implementing partner's regionalisation is not permanent.



ANNEX 1: Application of chlorine solutions in cleaning and disinfecting

Solution	Use	Prepare using bleach (5%)	Prepare using powder (65-70%)
0.05%	Bare hand and skin, Floors and equipment, Clothing, Bedding, Vehicles.	0.1 litre bleach + 9.9 litre of water	7 grams/ 0.5 tablespoon + 10 litre of water
0.5%	Excreta, Vomit, Body fluids.	0.1 litre bleach + 0.9 litre of water	7 grams/ 0.5 tablespoon + 1 litre of water
2%	Dead body	0.4 litre bleach + 0.6 litre of water	30 grams/ 2 tablespoons + 1 litre of water

ANNEX 2: How to make 0.5% chlorine solution from 70% chlorine powder

How to Make Strong (0.5%) Chlorine Solution from 70% Chlorine Powder

Use strong (0.5%) chlorine solution to clean and disinfect surfaces, objects, and body fluid spills.
Make new strong (0.5%) chlorine solution every day. Throw away any leftover solution from the day before.

- 1** Make sure you are wearing **extended PPE**.
- 2** Add 10 tablespoons of HTH (70% chlorine) to 20 liters of water in a bucket.
- 3** Stir well for 10 seconds, or until the HTH has dissolved.
- 4** Wait 30 minutes before use.
- 5** Label bucket "**Strong (0.5%) Chlorine Solution - Cleaning**."
- 6** Cover bucket with lid.
- 7** Store in shade. Do not store in direct sunlight.

Supplies Needed

WARNING
Do NOT drink chlorine water.
Do NOT put chlorine water in mouth or eyes.

Source: WHO (2004) ISBN 92 9022 238 7: Practical Guidelines for Infection Control in Health Care Facilities



ANNEX 3: How to make 0.5% chlorine solution from liquid bleach

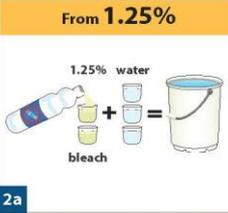
How to Make Strong (0.5%) Chlorine Solution from Liquid Bleach

Use strong (0.5%) chlorine solution to clean and disinfect surfaces, objects, and body fluid spills.
Make new strong (0.5%) chlorine solution every day. Throw away any leftover solution from the day before.



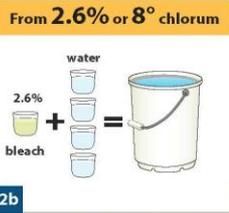
1

From 1.25%



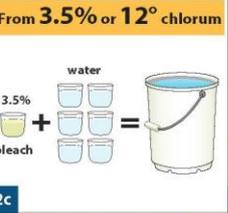
2a

From 2.6% or 8° chlorum



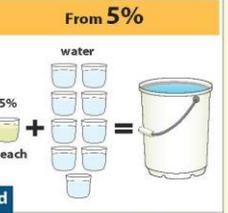
2b

From 3.5% or 12° chlorum



2c

From 5%



2d

1 Make sure you are wearing **extended PPE**.

2a Pour 2 parts liquid bleach and 3 parts water into a bucket. Repeat until full.

2b Pour 1 part liquid bleach and 4 parts water into a bucket. Repeat until full.

2c Pour 1 part liquid bleach and 6 parts water into a bucket. Repeat until full.

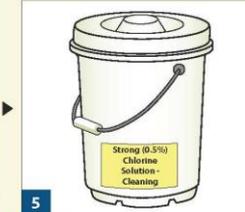
2d Pour 1 part liquid bleach and 9 parts water into a bucket. Repeat until full.



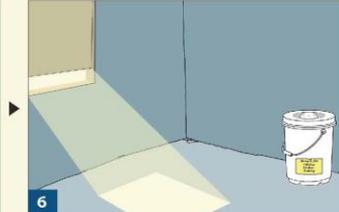
3



4



5



6

3 Stir well for 10 seconds.

4 Label bucket "Strong (0.5%) Chlorine Solution - Cleaning."

5 Cover bucket with lid.

6 Store in shade. Do not store in direct sunlight.

Supplies Needed



WARNING

Do NOT drink chlorine water.
Do NOT put chlorine water in mouth or eyes.



Source: WHO (2004) ISBN 92 9022 238 7: Practical Guidelines for Infection Control in Health Care Facilities



ANNEX 4: Preparation of lower formalin-containing solution for embalming

The embalming solution comprises of 7.5% formalin as the active fixative, glycerin, phenol powder and tap water. Approximately 16 Litres solution is required for embalming one body.

Preparation

- 1) Measure 0.5 Litres of Glycerin;
- 2) Dissolve 500 gm of Phenol powder into 0.5 Litres of clean tap water;
- 3) Measure 3 Litres of 37% formaldehyde;
- 4) Measure 12 Litres of clean tap water;
- 5) Combine the mixture in a clean large container and mix well;
- 6) Label as appropriate.

NOTE 21: Formalin has toxic effects, which can endanger the lives of staff and visitors, therefore, preparation must be done in a well-ventilated area.

Source:

<https://pdfs.semanticscholar.org/b847/1ba676a963aba9e8936bbb32df8e170eb087.pdf>.



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TABLE 9: List of participants

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