



**MINISTRY OF HEALTH
KENYA**

**INTERIM GUIDELINES ON HANDLING OF HUMAN REMAINS INFECTED
WITH COVID- 19 IN KENYA**

This document will guide all mortuaries both public and private

**These consolidated guidelines provide recommendations for comprehensive
management in handling of bodies infected with covid19**

Scope of Guidelines:

The guideline is designed to provide support on the does and don'ts to those handling dead bodies from the community level to the established mortuaries across the country in order to minimize transmissions during the epidemic

Act as a quick standard reference in handling dead bodies during the pandemic

Provide standard tools for tracking and documenting these cases

Provide standard disinfection and decontamination chemicals/solutions for the mortuary and sites of death

Target Audience:

Those handling bodies of deceased persons at community level, Healthcare, county
and national level.

FOREWARD

Severe acute respiratory syndrome coronavirus 2 (SARS CO-V 2) virus is a Novel Corona virus that was identified as causing a cluster of pneumonia and deaths in Wuhan city in China on 31st December 2019. Even though it has been fairly well controlled in China, it has continued to cause morbidity and mortalities due to rapid spread to other parts of the world, leading to the eventual declaration by WHO that it is a pandemic.

There is hence an urgent need to have guidance on how to control the spread of the disease in Kenya. Kenya has not been spared by the disease, with multiple cases being reported in various parts of the country. As of 27th March 2019, one death associated with the disease was reported, thus the requirement to put up measures on handling bodies of deceased persons in preparation for possible fatalities.

The scope of this guideline includes handling of bodies at community level, hospitals, in mortuaries/funeral homes, transportation and body disposal.

These guidelines are also subject to review as we learn more about the disease and measures to reduce its spread and contain it.

As we are managing the human remains, care must be taken in form of safety while also ensuring that we preserve dignity of the dead and be sensitive to the bereaved and their cultural and religious beliefs.

Dr. Patrick Amoth

Ag. Director General of Health

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Dr. Laban Thiga

Ag. Director, Directorate of Health Care Practice

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LIST OF ABBREVIATIONS

BID – Brought in Dead

HCP – Healthcare Personnel

MITS – Minimally Invasive Tissue Sampling

NP – Nasopharyngeal

OP - Oropharyngeal

PAPR - Powered, air-purifying respirators

PH – Public Health

PHO – Public Health Officer

PPE – Personal Protective Equipment

PM – Postmortem

PUI – Persons under investigation

PVC – Polyvinyl chloride

SARS – Severe Acute Respiratory Syndrome

WHO – World Health Organization

1.0 INTRODUCTION

Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) virus is a novel type of corona virus that was identified at the end of 2019 as the cause of a cluster of pneumonia cases in Wuhan, a city in Hubei Province of China, with a rapid spread that has now been sporadically spread to other parts of the world.

On March 11th, 2020 the World Health Organization (WHO) declared it a pandemic pointing to over 11,800 cases of coronavirus illness in over 110 countries and territories around the world with sustained risk of further global spread. WHO has put up measures to work with affected countries to reduce the spread. Of note is that its clinical course tends to be mild in about 80% of the affected population. A case fatality of 2% has been reported globally.

Without containment measures, it has been noted that each infected individual infects on average 2.5 persons. Following the first reported case in Kenya on 13th March 2020 the incidence has been growing exponentially with a similar trend seen in other countries. The index case was that of a traveler visiting Kenya from the United States of America via the United Kingdom. The Kenya government immediately put up measures to contain the spread, including closure of schools and colleges and banning of social gatherings.

Widespread community transmission can overwhelm health systems resulting in excess deaths; therefore, guidelines are required for the safe management of bodies of the deceased persons in preparation for possible fatalities. The measures include

handling of bodies at community level, hospitals, in mortuaries/funeral homes, transportation and body disposal. Complete autopsy of bodies with the disease is highly discouraged. This can only be done in exceptional circumstances after consultation and authorization from the disease surveillance department within the facility and county which is then relayed to the Ministry of Health disaster emergency response operation center under the Director General's office.

During this time there needs to be heightened caution and implementation of strict standard infection prevention protocols and guidelines within the environment, hand hygiene and decontamination. The use of correct PPEs is an obligatory requirement.

As expected in any natural diseases, many of infected people may be asymptomatic but die of other causes including accidents, homicides or suicide. Universal precautions MUST be taken while handling all bodies to minimize risk of transmission to healthcare professionals and all mortuary attendants involved in handling the deceased persons.

Persons diagnosed with coronavirus disease in the healthcare facilities, home or in other locations may have autopsies done in exceptional circumstances with authorization from the Chief Government Pathologist. The safety and well-being of everyone who handle these bodies should be the first priority.

The dignity of the dead, their cultural and religious traditions, and their families should be respected and protected throughout. Cultural aspects of Islamic religion

has also been annexed in this document, bearing into mind the infection control practices and Government regulations.

This guideline was developed to provide general guidance and support in management (handling) of the dead and to the authorities in their response to increased deaths associated with the pandemic in order to support the Healthcare Personnel in handling of the bodies, disinfection of the surfaces and disposal of the bodies and tissues. This was also developed to ensure the protection, dignity and respect for the deceased individuals and their next of kin.

The management of deceased persons with coronavirus disease should not impede the medicolegal investigation of death where required by the authorities but offer additional health and safety precaution should be adopted for the necessary post-mortem procedures.

The standards that are referenced include WHO and other institutions such as NIH and CDC. Note that these standards are to enhance and support the day to day practices at a health institution. This document will complement the institutional Water, Sanitation AND hygiene (WASH) and the Infection prevention and control (IPC) efforts.

In addition to the guideline highlights on environmental safety and biohazard control are included.

2.0 BODY HANDLING AT THE COMMUNITY LEVEL AND ON TRANSIT THIS INCLUDES IN AMBULANCE, PRIVATE OR PUBLIC VEHICLE

- Once a death is encountered at the community level, the family or the community must notify the nearest health service delivery point immediately who then notify the county disease surveillance department within the facility and county office which is then relayed to the Ministry of Health disaster emergency response operation center under the Director General's office
- The regional pathologist will be notified by the county surveillance department. The pathologist will be responsible for supervision and guidance
- The health worker must ensure that the body is handled applying strict standard precautions, including hand hygiene before and after interaction with the body and the environment, and use of appropriate personal protective equipment (PPE) at all times place the body into leak proof and tamper proof body bags.
- If there is risk of splashes from the body fluids or secretions, personnel should use facial protection, including the use of face shield or goggles and medical mask.
- Ensure any body fluids leaking form orifices are contained by complete packing with cotton infused with 10% formalin and of also including usage of monsels or bandages.
- Keep both the movement and handling of the body to a minimum. The body should be labelled and bagged/plastic wrapped immediately into a body bag.

- The body bag will be made of PVC, leak proof and tamper proof material.
There will be double bagging of all bodies
- Once the body bag been wrapped it must NOT be opened thereafter.
- The outermost body bag must be wiped with 0.5% sodium hypochlorite/disinfectant.
- There will be NO embalming to avoid excessive manipulation of the body.
- It will NOT be permitted with this disease.
- The body must be disposed of or buried by the family as soon as possible under supervision of the HCP, the local Health care committee leader and religious leader.
- There should be NO social or religious gathering in line with the President's directive.
- It is strongly recommended that adults aged 60 years and above and immunosuppressed persons should not directly interact with the body

3.0 TRAINING IN INFECTION AND PREVENTION CONTROL MECHANISMS

- All staff identified to handle dead bodies in the isolation area, mortuary, ambulance and those workers in the crematorium / burial ground should be trained in the infection prevention control practices.

4.0 BODY HANDLING IN HOSPITAL

- When death is confirmed by the relevant health care providers, the bodies shall be immediately tagged then placed into leak proof and tamper proof body bags.
- Position pre-opened body bags (non- porous) next to hospital bed on a medical stretcher/Mortuary stretcher.
- Pull bed sheet(s) up and around body. **Do not wash or clean body. Remove inserted medical equipment's from the body.**
- Gently roll body wrapped in sheets while sliding the body bag under body.
- Complete transfer of body to body bag.
- Zip up body bag and ensure you minimize air in bag.
- Disinfect gloved hands using alcohol-based hand rub (ABHR) with a minimum alcohol concentration of 70%.
- If any areas of PPE have visible contamination, disinfect with 0.5% **Sodium hypochlorite** (bleach).
- Disinfect outside of the body bag with 0.5% Sodium hypochlorite (bleach).
- Wheel the medical stretcher/Mortuary stretcher to decontamination area.
- Decontaminate surface of body bag with 0.5% Sodium hypochlorite.
- Begin by applying the 0.5% Sodium hypochlorite to top of bag and any exposed areas of Medical stretcher's or Mortuary stretcher.
- Roll the body bag to one side to decontaminate half of bottom of body bag and newly exposed portion of the Medical stretcher.
- Repeat with other side of bag and Medical stretcher.

- After cleaning all visible soiled areas with soap and water, reapply 0.5% Sodium hypochlorite and allow 10 minutes contact time and rinse off with clean water.
- Disinfect surfaces of medical stretcher's or Mortuary stretcher from handles to wheels with the disinfectant, clean with soap and water then disinfect with 0.5% Sodium Hypochlorite and allow 10 minutes contact time and rinse off with clean water.
- The wheels of the stretcher should be rolled over a mat soaked in 0.5% Sodium Hypochlorite.
- Disinfect gloved hands using bleach solution (0.5% Sodium Hypochlorite).
- Patient identification and all other necessary documents that need to accompany the body should be placed in a zip lock bag.
- Affix the following labels to the body bag before it is placed onto the hearse or other vehicle used to transport the body: **"infectious substance" label**
- Push Medical stretcher and hand over the decontaminated body bag for burial
- Proceed to PPE removal area.
- Key considerations:
 - Strictly observe standard infection prevention precautions
 - Appropriate personal protective equipment (PPE) must be worn
 - Do not wash or clean the body.
- This also applies to deceased persons who are brought in dead (BID).

5.0 BODY HANDLING IN THE MORTUARY

- All the bodies confirmed to be positive for the coronavirus **MUST** be immediately placed in a designated isolate refrigerated chamber with a temperature of between 2-4 degrees centigrade.
- All bodies will be placed in the same refrigerator to contain spread and allow for maximum precautions during handling. There should be no commingling with other bodies
- Ensure mortuary staff apply standard precautions including proper hand hygiene and use of personal protective equipment (PPE).
- The mortuary attendant must ensure that the body is handled applying standard precautions, including hand hygiene before and after interaction with the body and the environment, and use of appropriate personal protective equipment (PPE) at all times.
- If there is risk of splashes from the body fluids or secretions, personnel should use facial protection, including the use of face shield or goggles and medical mask.
- Ensure any body fluids leaking from orifices are contained by complete packing with cotton infused with 10% formalin and of also including usage of monsels or bandages.
- Keep both the movement and handling of the body to a minimum.

- The body should be labelled and bagged/plastic wrapped immediately into a body bag.
- The body bag will be made of polyvinyl chloride (PVC), leak proof and tamper proof material.
- There will be double bagging and once the body bag or plastic has been wrapped it must NOT be opened thereafter.
- There should be **NO embalming** to avoid excessive manipulation of the body.
- **Embalming will NOT be permitted with this disease.**

6.0 POSTMORTEM EXAMINATION

This procedure will only be carried out in designated referral institutions by adequately trained personnel following authorization by the Government

Pathologist

- In cases where postmortem examination is indicated, such as death in children, those with unusual presentations like CNS, or GIT disease, community death, death during puerperium or peripartum.
- Ensure that stringent safety measures are put in place while performing postmortem examinations and collecting samples.
- The PM examination should be performed under the following guidelines:
 - A limited PM should be done in a designated isolated space in the mortuary

- Use the Minimally invasive procedure for tissue and fluid/swab sampling technique
- Identification can be carried out using digital means of photos of the face and other identifiers with the family out of the mortuary.
- Digital medium to be used include camera for photography and Television/ LCD display in the management office for next of kin to identify the body from the screen. This is to reduce the number of persons exposed to the body.
- Apply appropriate safety measures to protect those performing the examinations

Engage minimal number of staff in the procedure and perform only if:

- There is adequate ventilation (use extractors do NOT use fans)
- Appropriate PPE is available
- Examine the body while in the body bag to limit body movement and spillage
- Once the limited autopsy is complete pack with cotton infused with 10% formalin with a focus on punctures on the body and sealing any leaking areas with cotton wool including usage of mousels or bandages
- ZIP bag as soon as the procedure is completed.
- There should be NO embalming

7.0 ENGINEERING AND ENVIRONMENT CONTROLS FOR AUTOPSY

- Safety procedures in cases of deceased persons infected with coronavirus disease should be consistent with those used for any autopsies for people who have died from an acute infectious respiratory illness.
- If a person died during the infectious period of the coronavirus disease, the lungs and other organs may still contain live virus, and additional respiratory protection will be needed during procedures
- Negative pressure rooms MUST be used with controlled direction of airflow when using mechanical ventilation, with adequate natural or LED lighting depending on time of day
- Instruments used during autopsy should be cleaned and disinfected immediately after the autopsy, as part of the standard routine procedure
- Environmental surfaces where the body was prepared should first be cleaned with soap and water or a commercially prepared solution which is left to soak on the surface for 10 minutes.
- Hospital-grade disinfectants may also be used as long as they have a label claim against emerging viruses, and they remain on the surface according to manufacturer's recommendations.
- After cleaning, a disinfectant with a minimum concentration of 0.1% (1000 ppm) sodium hypochlorite (bleach)
- Personnel should use appropriate PPE, including respiratory and eye protection, when preparing and using the disinfecting solutions

- Items classified as clinical waste must be handled and disposed of properly and safely according to standard infection prevention and control requirements and legal requirements
- Only a minimum number of staff should be involved
- Appropriate PPE must be available
- Use air extractors Do NOT use Air fans in the mortuary
- Reference centers shall establish appropriate procedures for autopsies with a strong focus on biosafety as guided by their technical experts
- Do NOT use of oscillating power saws

8.0 CLEANING OF SURFACES AND FUMIGATION OF AUTOPSY SURFACES AND ROOMS

- The mortuary must always be kept clean and properly ventilated
- Soak surfaces with the solution as follows: 4 parts sodium hypochlorite (5.15-6.15%) sodium hypochlorite solution to 100 parts water for at least 30 minutes prior to cleaning
- Clean ALL cleaning surfaces with water and detergent
- Do fumigation daily at the end of the day. The solutions used are Lysol and formalin

9.0 TRANSPORTATION OF BODIES

- Bagged Bodies must be placed in a body bag and the exterior surface decontaminated for transportation.

- Bodies for repatriation will follow IATA guidelines on handling bodies with infectious agents (see reference)
- Once the body has been delivered to the mortuary, the casket **MUST** be cleaned and disinfected using the standard procedures described earlier.
- The body **SHOULD NOT** be reopened for viewing the body or once put into the casket
- Vehicle used to deliver the body will follow the cleaning and fumigation guidelines as described above for the mortuary before the vehicle leaves the mortuary, after they have handed the body to the morgue

10.0 BODY DISPOSAL

This is carried out strictly under the supervision of the PHO/ HCP

- The disposal of human remains from COVID-19 cases should be overseen by a public health official within 2 days (48 hours) to avoid community practices that would result in more infections through contact
- The health worker must ensure that the CASKET is handled using the PPE at all times. **The body MUST NOT be opened FOR VIEWING thereafter.**
- The body must be buried on the same day, immediately by the family under supervision of the HCP, the local Health care committee leader and religious leader.
- Relatives are **STRICTLY FORBIDDEN** from touching or kissing the body.
- The local health authorities should designate a team to oversee the process of human remains disposal in case of coronavirus disease deaths.

- As much as possible minimize handling of human remains during transportation
- Ensure that anyone handling the body bag wears single-use (disposable) gloves with extended cuffs and double gloving.
- Coordinate all transportation of the deceased person with coronavirus disease with the local health officials
- As in the case of any other highly infectious disease, avoid transporting noncremated remains via aircraft. This is in line with IATA guidelines (see reference)
- A plan should be in place to transport the body safely from the hospital to the hearse or vehicle used to transport the body.
- A public health official should be designated in advance to accompany the body from the hospital to the place of final disposition to ensure the safety of all those involved in the process.
- Follow government guidance on the conduct of funerals which includes minimizing the number of attendants to not more than fifteen and must adhere to social distancing.
- There should be procedures in place so the designated official accompanying the body knows what to do if the body bag is compromised during transport and how to safely decontaminate it.
- The health official overseeing the body disposal should have a biohazard spill kit and recommended PPE with all the equipment needed for any situation in which the body bag is compromised

- For unclaimed infected bodies, the minister can invoke the public health Act CAP 242 section 36 (a) and (h) in cases of emergency.
- The minister can also be guided under the same law on burial of bodies as soon as possible.

11.0 WASTE DISPOSAL

- All mortuary waste **MUST** be packed in the ideal plastic containers appropriately and transported safely for incineration under supervision by the hospital PHO.
- The incineration **MUST** be carried out at the end of each day without allowing waste to lie overnight

12.0 FUMIGATION OF THE PLACE OF DEATH

- In case of a community death, the HCP must organize for fumigation by the PH team within 24 hours.
- The fumigation can be carried out using 10% formaldehyde through fumigation aerosol pump.
- The site must be allowed to remain untouched for at least 24 hours after fumigation.

13.0 FUMIGATION OF THE MORTUARY

- Use 10% formaldehyde and allow to fumigate untouched for 24 hours before cleaning.

14.0 DATA HANDLING

- All registers must be maintained as is procedural for mortuary services.
- Confidentiality and safety must be maintained
- All data on mortalities will be sent to the regional pathologist then onwards to the Government Pathologist office using the provided data capture sheet (see annex)

15.0 TRANSPORTATION AND HANDLING OF SPECIMENS

- Best practice in specimen collecting and handling must be as per the triple bagging/packaging with reference to the CDC guidelines
- The samples will be sent to regional centers and distributed appropriately for testing. See MITS guidelines on samples to be collected in annex document

16.0 IDENTIFICATION OF MORTUARY HANDLERS

- A logbook including names, dates and activities of all workers participating in the postmortem and cleaning of the autopsy suite should be kept to assist in future follow up, as and when required.
- Include custodian staff entering after hours or during the day. See attached document in the annex
- Tracking and identifying of mortuary handlers is important for contact tracing

17.0 COUNSELLING AND DEBRIEFING OF PATHOLOGISTS AND MORTUARY ATTENDANTS

- Group and personal debriefing should be carried out at least once a week.
- A trained counsellor should be assigned to the mortuary for this purpose.
- Where a member of staff is found to be unable to cop due to stress from work, they should be advised to take time out for rest using conventional reporting work policy channels.
- A report on these activities should be forwarded to the service manager weekly.
- There will be regular debriefing of mortuary staff and medical practitioners involved in the process

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18.0 ANNEX

1. STANDARD PRECAUTIONS

2. MITS KIT REQUIREMENTS

3. STANDARD OPERATING PROCEDURE FOR LIMITED AUTOPSY USING THE MINIMALLY INVASIVE TISSUE SAMPLING (MITS) TECHNIQUE

4. ISLAMIC GUIDELINES TO HANDLING SAFE AND DIGNIFIED BURIALS

5. MORTUARY CHECKLIST

6. DATA CAPTURE SHEET

7. CLEANING AND WASTE DISPOSAL RECOMMENDATIONS

8. SPECIMEN HANDLING AT POSTMORTEM

9. CASE TRACKING FORM AND DATA CAPTURE FOR MORTUARY ATTENDANTS

ANNEX 1

Standard precautions

- **Hand hygiene**
 - Hand using with soap and running water before and immediately after procedures
 - Use of alcohol-based hand rub of 70% concentration and above
- **Use of PPE**
 - **Gloves**
 - Wear nonsterile, nitrile gloves when handling potentially infectious materials.
 - If there is a risk of cuts, puncture wounds, or other injuries that break the skin, wear heavy-duty gloves over the nitrile gloves.
 - Change gloves between tasks
 - Perform hand hygiene after every procedure
 - **Facial protection**
 - Use a plastic face shield or a facemask and goggles to protect the face, eyes, nose, and mouth from splashes of potentially infectious bodily fluids.
 - Avoid contamination
 - **Gowns**
 - Wear a clean, long-sleeved fluid-resistant or impermeable gown to protect skin and clothing.

- Remove soiled gowns as soon as possible
 - **Masks**
 - Always use medical masks (preferable N95)
- **Environmental control**
 - Disinfection: disinfectants containing sodium hypochlorite, alcohol, phenolic compounds, quaternary ammonium compound and oxygen compounds
- **Cleaning of equipment**
 - Ensure they are cleaned and dried between usage
- **Waste management**
 - Standard Colour coding of solid waste bins
 - Flush liquid wastes or solid fecal waste into sewerage system
- **Prevention of needle-stick or sharp injuries**
 - Standard precautions like use of sharp disposal containers, never recapping used needles, avoid careless handling of sharps

ANNEX 2

MIT S KIT REQUIREMENTS

Materials Required: MITS Sample collection Kit Components

1. Blood spot card	10. 20G 1.5” and 18G 3.5” spinal puncture needle for CSF collection
2. Photo card	11. 20G 1.5” and 16G 1” spinal puncture needle for CSF collection
3. Labels for samples	12. 20 ml syringes for CSF and blood collection
4. Bard Monopty needle 16 G, 100mm	13. EDTA vacutainer
5. Bard Monopty needle 16 G, 160mm	14. 10 ml sterile tube for CSF and rectal swab
6. Trephine biopsy needle	15. 2 ml cryogenic vials for tissue microbiology
7. Nasopharyngeal swab with viral transport media	16. Large 120ml screw cap jar storage and transport of tissue cassettes
8. Rectal brush	17. Tissue cassettes
9. Personal protective equipment	18. 20 ml 10% NBF (neutral buffered formalin)

ANNEX 3

STANDARD OPERATING PROCEDURE FOR LIMITED AUTOPSY USING THE MINIMALLY INVASIVE TISSUE SAMPLING (MITS) TECHNIQUE

1. Appropriate personal protective equipment will be worn by the MITS personnel before commencement of the sample collection.
2. The body will be cleaned at the sites of sample collection and left to dry for five minutes between the cleaning steps using clean water, 70% alcohol and finally iodine solution respectively. The sample collection sites include the nose, posterior cervical/occipital region, supra-clavicular region, axillae, right upper quadrant region and the anus.
3. Cerebrospinal fluid is collected from the cistern magnum through the occipital region using the 20G and 18G spinal needles for paediatric and adults bodies respectively and delivered to the sterile tube using the 20 ml syringe.
4. Nasopharyngeal swab sample is obtained trans-nasally and placed into the nasopharyngeal tube with viral transport media.
5. Brain tissue is collected from the occipital region (3 specimens) and trans nasally (3 specimens) using the 16G 160 mm Bard Monopty needle. NB: The fontanelles will be used to obtain brain samples in infants. Trans-nasal brain access is achieved after penetration of the cribriform plate using a trephine needle.
6. The first 3 specimens (3 occipital and 3 trans-nasal) are delivered to the cryogenic vial for microbiology tests. A further 6 brain tissue specimens are obtained and delivered to the 20 ml formalin jar for histological analyses.
7. Blood sample collection is carried out using 16G and 18G intramuscular needles for infants and adults respectively. The specimen is obtained through the supraclavicular region or via direct heart puncture. The blood is then put into an EDTA vacutainer and blood spot card.
8. Lung tissue is collected from the axillary regions using a Bard Monopty 16G 100 mm needle. The first three of the specimens bilaterally are delivered to the cryogenic vials for microbiological tests while the next 6 bilaterally are delivered to 20 ml jars for histological analyses. NB: The specimens are obtained from the different lung lobes through adjusting the angulation of the direction of the needle.
9. Liver tissue is obtained from the mid-axillary line at any of the last 3 intercostal spaces using a 16G 100mm Bard Monopty needle. The first three specimens obtained

are delivered to the cryogenic vials for microbiological tests while the next three are put into a 20 ml formalin jar for histological analyses.

10. Rectal stool sample is obtained using a rectal brush and put in a 10ml sterile tube for microbiological analyses.

11. After the MITS specimen collection is completed, the sample containers are properly labelled and placed in a MITS cool box for the microbiology samples and MITS kit box for the pathology samples for onward transmission to the laboratory.

12. The body is cleaned with 0.5% hypochloride solution and dried. This is then placed into body bags and taken into storage.

ANNEX 4

ISLAMIC GUIDELINES TO CONDUCT SAFE AND DIGNIFIED HANDLING & BURIAL OF A MUSLIM DECEASED OR OF A SUSPECTED CASE OF CORONAVIRUS DISEASE

RECOMMENDATIONS FOR KENYA

The Muslim scholars have come to a conclusion that in the case of the deceased of coronavirus, the obligations of Ghusl (washing of the dead) and Kafn (shrouding) can be suspended in the eventuality of extreme necessity, due to the formidable situation with a view to minimising the spread of this pandemic and saving the human lives.

Islamic law highly values all precautions issued by any Department of Health in this regard. In consequence, the deceased of this virus is to be buried without ghushl and kafn if required, and Janazah (Prayer for the dead) would be performed in the graveyard from a convenient distance at the time of burial by a few individuals if possible, or may be offered after burial at his grave. Or away from the grave in absentia. As the Prophet prayed the Janaza prayer for Negus (Abysynian King) in absentia.

Hence in these extenuating circumstances we would encourage this as an alternative for those who are not able to attend the prayer in person of a family member or friend.

Allah knows best.

STEPS TO BE TAKEN:

NOTE: Deceased Muslims should not be cremated or placed in the body bag naked.

- A Dry Ablution (Tayamum) can be performed by a Muslim member of the burial team on the deceased patient before being placed in the body bag. Otherwise a Muslim person/family member can perform this simple procedure once they have been placed in the body bag.
- The deceased patient is shrouded by wrapping in a plain white cotton sheet before being placed in the body bag. The shroud should be knotted at both ends.
- Female members of the Burial team should shroud deceased female patients prior to placing in a body bag.

- Permission can be sought in advance from the Imam that the body bag can be used to represent a shroud. White body bags should be used for Muslim patients.

SHROUDING (KAFN)

- A plain unstitched white cotton sheet (scented with musk, camphor or perfumed) is placed on top of the opened body bag.
- The deceased is lifted by the Burial team and placed on top of the shroud.
- The extended side edges of the shroud are pulled over the top of the deceased to cover the whole body, i.e. the head, body, legs and feet.
- Three strips cut from the same fabric are used to tie and close up the shroud. One for above the head, one for below the feet and one for around the middle of the body. It is knotted at both ends.
- Female members of the Burial team should shroud the deceased female patients.
- The body bag is closed.

Collection of soiled objects, disinfection if needed, or burning and cleaning and disinfection of the environment (rooms, house) wearing PPE

1. Collect any sharps that might have been used on the patient and dispose them in a leak-proof and puncture resistant container.
2. Clean with clean water and detergent and then disinfect with a suitable disinfectant (e.g., 0.5% chlorine solution) all rooms and annexes of the house that were possibly infected by the deceased patient. Special focus should be given to areas soiled by blood, nasal secretions, sputum, urine, stool and vomit.
3. Clean with water and detergent all objects (e.g. dishes...) possibly infected by the deceased patient; then disinfect with a chlorine solution 0.5%.
4. Gather in a plastic bag, bed linen, clothes and objects of the deceased, if any. Ensure the bag is tightly closed and disinfected.

5. Mattresses, straw mats soiled with body fluid of the deceased patient should be burnt at a distance from the house. Ensure the family have given permission to destroy the mattresses, straw mat, etc.

At the end of this step all places in the home are disinfected

6. Family to communally wash hands with disinfectant after the burial (using chlorine solution 0.05% or make an alcohol-based hand-rub solution available for hand hygiene performance) for all members involved in the funeral process.

NECESSARY EQUIPMENT TO PREVENT INFECTIONS

Hand hygiene:

- Alcohol-based hand rub solution OF 70% and above(recommended) OR
- Clean running water, soap and towels (recommended) OR
- Chlorine solution 0.05% (when option above are not available)

Personal Protective Equipment (PPE):

- One pair of disposable gloves (non-sterile, ambidextrous)
- One pair of heavy duty gloves
- Disposable coverall suit (e.g. Tyvec suit) + impermeable plastic apron
- Face protection: goggles and mask

Footwear:

- Rubber boots (recommended) OR if not available
- Shoes with puncture-resistant soles and disposable overshoes

Waste management materials:

• Disinfectant:

One hand sprayer (0.05% chlorine solution)

One back sprayer (0.5% chlorine solution)

- Leak-proof and puncture resistant sharps container

- Two leak-proof infectious waste bags: one for disposable material (destruction) and one for reusable materials (disinfection)

Revised by:

1. Sh. Muhammad Swalihu, Imam, Jamia Mosque, Nairobi.
2. Sh. Abdulrahman Is'haq, Imam, Parklands Mosque, Nairobi.
3. Sh. Ibrahim Rasheed, Imam, Salaam Mosque, South C, Nairobi.
4. Sh. Muhdhar Hussein, Imam, Athi River Mosque, Mavoko.
5. Sh. Abdullatif A. Sheikh, Family Resource Centre, Jamia Mosque, Nairobi.

25th March, 2020.

ANNEX 5

CHECKLIST FOR MORTUARY ROOMS AT DIFFERENT LEVELS

1. MORTUARY WITH CAPACITY TO CARRY OUT AUTOPSIES LEVEL IV

The basic setting for a mortuary should include a dissection room, viewing room, the freezing rooms, the staff room, management office, consumable/suppliers store, reception, toilets, changing rooms, specimen storage room

Reception/medical records:

1 Chair

1 Table

Box files

Desktop

Printer

Hand wash sink

Bookshelf

Coded waste bins

Waiting room

Chairs

Coded waste bins

Chapel/Hall/auditorium

Chairs

Coded waste bins

Counselling room

Office desk and 2 chairs

Bookshelf

Coded waste bins

Management office

2 Chairs

1 office Table

Box files

Desktop

Printer

Hand wash sink

Bookshelf

Coded Waste Bins

Dissection Room

Foot deep box with toilet brush

Office table

Hanging shelf with documents to do the autopsy for person conducting autopsy

Hand wash sink

Aluminum/terazo Dissection table/s with running tap water and a drain

Aluminum body Trolley

Aluminum/terazo Work top with running tap water and drain or gross station with running tap water and drain

Dissection kit

Oscillator with a fume hood/aerosol protector

Hack saw

Chopping board

Weighing scale

Measuring cylinders

White board for the wall

Camera and audio recording equipment

CCTV/ glass wall for auditorium

Aluminum mobile specimen and instrument trolley

Storage cupboards

Sharps bins

General waste bin (step bin) – colour black [general waste]

Coded Waste Bins (step bin) – color yellow [infectious waste]

Coded Waste bin (step bin) – colour red [anatomical pathologic waste]

Air Extractor or Negative pressure room

Wide windows for natural light/LED light/ UV decontamination lighting

Imaging services

Portable x-ray machines with a scanner

CT Scan/MRI to be sourced from the main hospital as and when needed

Sluice space

Sink with running tap water and a drain

Autoclave and high-level decontamination facility

Macerators

Work top with terrazzo/aluminum

Air Extractor or Negative pressure room

Coded waste bins

Specimen storage room/Transition area

Terazo work top

Buckets

Basins

Shelves

Coded waste bins

Consumable store

Storage shelves

Office table and chair

Coded waste bins

Changing rooms

Male changing room

Female changing room

Cupboards/lockers

Boots

Scrubs

Masks

Gloves

Eye protective goggles

Hair capes

Disposable gowns

Shoe covers

Hazmat suit

Power respirators with HEPAfilters

Disposable waterproof aprons

Coded waste bins

Toilets

Staff Male toilets

Staff Female toilets

Public toilets

Coded waste bins

Freezer room

Manual hoisting Aluminum body trolley

Simple aluminum trolley

White board

Refrigerators

Staff room/tearoom

Tables

chairs

Coded waste bins

2. PRIVATE/COMMUNITY LEVEL MORGUE LEVEL II AND III

The basic setting for a mortuary should include a dissection room, viewing room, the freezing rooms, the staff room, management office, consumable/suppliers store, reception, toilets, changing rooms, specimen storage room

Reception/medical records

1 Chair

1 Table

Box files

Desktop

Printer

Hand wash sink

Bookshelf

Coded waste bins

Waiting room

Chairs

Coded waste bins

Chapel/Hall/auditorium

Chairs

Coded waste bins

Counselling room

Office desk and 2 chairs

Bookshelf

Coded waste bins

Management office

2 Chairs

1 office Table

Box files

Desktop

Printer

Hand wash sink

Bookshelf

Coded Waste Bins

Dissection Room

Foot deep box with toilet brush

Office table

Hanging shelf with documents to do the autopsy for person conducting autopsy

Hand wash sink

Aluminum/terazo Dissection table/s with running tap water and a drain

Aluminum body Trolley

Aluminum/terazo Work top with running tap water and drain or gross station with running tap water and drain

Dissection kit

Oscillator with a fume hood/aerosol protector

Hack saw

Chopping board

Weighing scale

Measuring cylinders

White board for the wall

Aluminum mobile specimen and instrument trolley

Storage cupboards

Sharps bins

General waste bin (step bin) – colour black [general waste]

Coded Waste Bins (step bin) – color yellow [infectious waste]

Coded Waste bin (step bin) – colour red [anatomical pathologic waste]

Air Extractor or Negative pressure room

Wide windows for natural light/LED light/ UV decontamination lighting

Sluice space

Sink with running tap water and a drain

Autoclave and high-level decontamination facility

Macerators

Work top with terrazzo/aluminum (Can hold samples temporarily)

Air Extractor or Negative pressure room

Coded waste bins

Consumable store

Storage shelves

Office table and chair

Coded waste bins

Changing rooms

Male changing room

Female changing room

Cupboards/lockers

Boots

Scrubs

Masks

Gloves

Eye protective goggles

Hair capes

Disposable gowns

Shoe covers

Hazmat suit

Power respirators with HEPAfilters

Disposable waterproof aprons

Coded waste bins

Toilets

Staff Male toilets

Staff Female toilets

Public toilets

Coded waste bins

Freezer room

Manual hoisting Aluminum body trolley

Simple aluminum trolley

White board

Refrigerators

Staff room/tearoom

Tables

chairs

Coded waste bins

4. LEVEL I FACILITY

The basic setting for a level I facility should include a holding room and viewing room, the staff room, management office, consumable/suppliers store, reception, toilets, changing rooms

Holding room

A simple lockable room.

Size MINIMUM 10 BY 20 FEET room

No other storage should be done in this room

Terazo floor

Reception/medical records

1 Chair

1 Table

Box files

Desktop

Printer

Hand wash sink

Bookshelf

Coded waste bins

Waiting room

Chairs

Coded waste bins

Management office

2 Chairs

1 office Table

Box files

Desktop

Printer

Hand wash sink

Bookshelf

Coded Waste Bins

Consumable store

Storage shelves

Office table and chair

Coded waste bins

Changing rooms

Male changing room

Female changing room

Cupboards/lockers

Boots

Scrubs

Masks

Gloves

Eye protective goggles

Hair capes

Disposable gowns

Shoe covers

Hazmat suit

Power respirators with HEPAfilters

Disposable waterproof aprons

Coded waste bins

Toilets

Staff Male toilets

Staff Female toilets

Public toilets

Coded waste bins

Staff room/tearoom

Tables

chairs

Coded waste bins

ANNEX 6

DATA CAPTURE SHEET, CORONAVIRUS DISEASE POSTMORTEMS

DATA CAPTURE SHEET, COVID 19 POSTMORTEMS

Name	Unique ID Code	Name of Person doing postmortem	Whether COVID test done: Indicate if +ve <small>red</small> -ve <small>red</small> unascertained	Date of death	Place of death	Age	Sex	Clinical Presentation	Clinical Diagnosis	Final Diagnosis	Autopsy type	State list of specimens collected and where samples were submitted	Any other relevant information

ANNEX 7

CLEANING AND WASTE DISPOSAL RECOMMENDATIONS

The following are general guidelines for cleaning and waste disposal following an autopsy of a decedent with confirmed or suspected coronavirus disease. Current evidence suggests that novel coronavirus may remain viable for hours to days on surfaces made from a variety of materials.

Routine cleaning and disinfection procedures (e.g., soaking the surface, using cleaners and water to clean surfaces) should be done prior to applying Environmental Protection Agency (EPA) approved disinfectant that expected to be effective against COVID-19 based on data for harder to kill viruses in these settings.

After an autopsy of a decedent with confirmed or suspected coronavirus disease, the following recommendations apply for the autopsy room (and anteroom if applicable):

- Keep ventilation systems active while cleaning is conducted
- Wear disposable double gloves recommended by the manufacturer of the cleaner or disinfectant while cleaning and when handling cleaning or disinfecting solutions.
- Dispose of gloves as soon as they become damaged, when soiled and when cleaning is completed, as described below.
- **NEVER WASH OR REUSE GLOVES.**
- Use eye protection, such as a face shield, goggles or face mask, if splashing of water, cleaner/disinfectant, or other fluids, is expected.
- Wear a clean, long-sleeved fluid-resistant gown to protect skin and clothing.
- Wear a NIOSH-certified disposable N-95 respirator or higher if you need to clean the room.
- Additional PPE may be required to protect workers against potential hazards associated with the cleaning and disinfectant products used and in accordance with the label instructions.
- When respirators are necessary to protect workers, employers must implement a comprehensive respiratory protection program in accordance with the OSHA Respiratory Protection standard (29 CFR 1910.134external icon) that includes medical exams, fit testing, and training.
- Use disinfectant that is expected to be effective against COVID-19 based on data for harder to kill viruses. Follow the manufacturer's instructions for all cleaning and disinfection products (e.g., concentration, application method and contact time, etc.).

- Soak the surface first then clean the surface and then apply the disinfectant as instructed on the disinfectant manufacturer's label.
- Ensure adequate contact time for effective disinfection.
- Adhere to any safety precautions or other label recommendations as directed (e.g., allowing adequate ventilation in confined areas and proper disposal of unused product or used containers).
- Avoid using product application methods that cause splashing or generate aerosols.
- Cleaning activities should be supervised and inspected periodically to ensure correct procedures are followed.
- Do not use compressed air and/or water under pressure for cleaning, or any other methods that can cause splashing or might re-aerosolize infectious material.
- Gross contamination and liquids should be collected with absorbent materials, such as towels, by staff conducting the autopsy wearing designated PPE.

Gross contamination and liquids should then be disposed of as described below:

- Use of tongs and other utensils can minimize the need for personal contact with soiled absorbent materials.
- Large areas contaminated with body fluids should be treated with disinfectant following removal of the fluid with absorbent material. The area should then be soaked, cleaned and then disinfected.
- Small amounts of liquid waste (e.g., body fluids) can be flushed or washed down ordinary sanitary drains without special procedures.
- Hard, nonporous surfaces may then be cleaned and disinfected as described above.
- Follow standard operating procedures for the containment and disposal of used PPE and regulated medical waste. National and county governments should be consulted for appropriate disposal decisions.
- Dispose of human tissues according to routine procedures for pathological waste.
- Clean and disinfect or autoclave non-disposable instruments using routine procedures, taking appropriate standard precautions with sharp objects.
- Materials or clothing that will be laundered can be removed from the autopsy suite (or anteroom, if applicable) in a sturdy, leak-proof biohazard bag that is tied shut, labelled clearly and not reopened. These materials should then be sent for laundering according to routine procedures taking with utmost precaution infection prevention and control measures.

- Wash reusable, non-launderable items (e.g., aprons) with detergent solution on the warmest setting possible, rinse with water, decontaminate using disinfectant, and allow items to dry completely before next use.
- Keep camera, telephones, computer keyboards, and other items that remain in the autopsy suite (or anteroom, if applicable) as clean as possible, but treat as if they are contaminated and handle with gloves.
- Wipe the items after use with appropriate Environmental Protection Agency (EPA)-approved disinfectant that are expected to be effective against COVID-19.
- If being removed from the autopsy suite, ensure complete decontamination with appropriate disinfectant according to the manufacturer's recommendations prior to removal and reuse.
- When cleaning is complete and PPE has been removed, wash hands immediately with soap and water for 20 seconds.
- Always wash hands with soap and water before using alcohol-based hand sanitizer of 70-95% concentration.
- Avoid touching the face with gloved or unwashed hands.
- Hand hygiene facilities **MUST** be readily available at the point of use (e.g., at or adjacent to the PPE doffing area).

ANNEX 8

SPECIMEN COLLECTION FOR POSTMORTEM

Most often, spread from a living person happens with close contact (i.e., within about 6 feet) via respiratory droplets produced when an infected person coughs or sneezes, similar to how influenza and other respiratory pathogens spread. This route of transmission is not a concern when handling human remains or performing postmortem procedures.

Postmortem activities should be conducted with a focus on avoiding aerosol, droplet deposits on fomites generating procedures, and ensuring that if aerosol generation is likely, appropriate engineering controls and personal protective equipment (PPE) are used. These precautions and the use of standard operating procedures should ensure that appropriate work practices are used to prevent direct contact with infectious material, percutaneous injury, and hazards related to moving heavy remains and handling embalming chemicals.

A. Collection of Postmortem Upper Respiratory Tract Swab Specimens when MITS is being performed

Collection of the following postmortem specimens is recommended if not performing autopsy:

- Postmortem clinical specimens for testing for SARS-CoV-2, the virus that causes COVID-19, to include only upper respiratory tract swabs:
 - Nasopharyngeal Swab AND
 - Oropharyngeal Swab (NP swab and OP swab)
 - Separate NP swab and OP swab specimens for testing of other respiratory pathogens
 - Individuals in the room during the procedure should be limited to healthcare personnel (HCP) obtaining the specimen.
 - If HCP are not performing an autopsy or conducting aerosol generating procedures (AGPs), follow Standard Precautions.

Engineering Control Recommendations:

Since collection of nasopharyngeal and oropharyngeal swab specimens from deceased persons will not induce coughing or sneezing, a negative pressure room is required. Personnel should adhere to Standard Precautions as described above.

PPE Recommendations:

The following PPE should be worn at a minimum:

- Wear nonsterile, double nitrile gloves when handling potentially infectious materials.
- If there is a risk of cuts, puncture wounds, or other injuries that break the skin, wear heavy-duty gloves over the nitrile gloves.
- Wear a clean, long-sleeved fluid-resistant or impermeable gown to protect skin and clothing.
- Use a plastic face shield or a face mask and goggles to protect the face, eyes, nose, and mouth from splashes of potentially infectious bodily fluids.

B. Autopsy procedures

Standard Precautions, Contact Precautions, and Airborne Precautions with eye protection (e.g., goggles, face mask or a face shield) should be followed during autopsy. Many of the following procedures are consistent with existing guidelines for safe work practices in the autopsy setting.

- Aerosolized Generating Procedures such as use of an oscillating bone saw is NOT recommended for confirmed or suspected cases of COVID-19.
- Consider using hand shears as an alternative cutting tool.
- Allow only one person to cut at any given time.
- Limit the number of personnel working in the autopsy suite at any given time to the minimum number of people necessary to safely conduct the autopsy.
- Limit the number of personnel working on the human body at any given time.
- Use a biosafety cabinet for the handling and examination of smaller specimens and other containment equipment whenever possible.
- Use caution when handling needles or other sharps, and dispose of contaminated sharps in puncture-proof, labeled, closable sharps containers.
- A logbook including names, dates, and activities of all workers participating in the postmortem and cleaning of the autopsy suite should be kept assisting in future follow up, as and when required.
- Include custodian staff entering after hours or during the day.

PPE Recommendations:

The following PPE should be worn during autopsy procedures:

- Double surgical gloves interposed with a layer of cut-proof synthetic mesh gloves
- Fluid-resistant or impermeable gown
- Waterproof apron
- Goggles or face shield
- NIOSH-certified disposable N-95 respirator or higher
- Powered, air-purifying respirators (PAPRs) with HEPA filters may provide increased worker comfort during extended autopsy procedures.
- When respirators are necessary to protect workers, employers must implement a comprehensive respiratory protection program. Before use of items the HCP must be trained and properly fit
- Surgical scrubs, shoe covers, and surgical cap should be used per routine protocols. Doff (which means taking off PPE), PPE should be taken off carefully to avoid contaminating yourself and before leaving the autopsy suite or adjacent anteroom.

After removing PPE, discard the PPE in the appropriate laundry or waste receptacle. Reusable PPE (e.g., goggles, face shields, and PAPRs) must be cleaned and disinfected according to the disinfection guidelines before reuse. Immediately after doffing PPE, wash hands with soap and water for 20 seconds. Always wash hands with soap and water before using alcohol-based hand sanitizer of 70-95% alcohol. Avoid touching the face with gloved or unwashed hands. Ensure that hand hygiene facilities are readily available at the point of use (e.g., at or adjacent to the PPE doffing area).

Collection of Postmortem Clinical Specimens for SARS-CoV-2 Testing

CDC recommends collecting and testing postmortem upper respiratory specimens (nasopharyngeal and oropharyngeal swabs) and, if an autopsy is performed, lower respiratory specimens (lung swab).

Materials and Methods

- i. Use only synthetic fiber swabs with plastic shafts.
- ii. Do not use calcium alginate swabs or swabs with wooden shafts, as they may contain substances that inactivate some viruses and inhibit PCR testing.

Swabbing method

i. Nasopharyngeal swab

- Insert a swab into the nostril parallel to the palate. Leave the swab in place for a few seconds to absorb secretions. Swab both nasopharyngeal areas with the same swab.

ii. Oropharyngeal swab (e.g., throat swab)

- Swab the posterior pharynx, avoiding the tongue.

iii. Lower respiratory tract: Lung swabs

- Collect one swab from each lung.

Specimen packing

i. Place swabs immediately into sterile tubes containing 2-3 ml of viral transport media.

ii. NP, OP, and lung swab specimens should be kept in separate vials. Refrigerate specimen at 2-8°C and send to the Laboratory performing the testing on ice pack.

iii. Upper Respiratory Tract Specimen Collection: Nasopharyngeal Swab AND Oropharyngeal Swabs (NP swab, OP swab)

Collection of Postmortem Clinical Specimens for Other Routine Diagnostic Testing

Separate clinical specimens (e.g., NP swab, OP swab, lung swabs) should be collected for routine testing of respiratory pathogens at either clinical or public health labs. Note that clinical laboratories should NOT attempt viral isolation from specimens collected from persons under investigation (PUIs) for coronavirus disease.

Other postmortem specimen collection and evaluations should be directed by the decedent's clinical and exposure history, scene investigation, and gross autopsy findings, and may include routine bacterial cultures, toxicology, and other studies as indicated.

Safely Preparing the Specimens for Transport

After collecting and properly securing and labeling specimens in primary containers with the appropriate media/solution, they must be transferred from the autopsy suite in a safe manner to laboratory staff who can process them for transport.

1. Within the autopsy suite, primary containers should be placed into a larger secondary container.
2. If possible, the secondary container should then be placed into a resealable plastic bag that was not in the autopsy suite when the specimens were collected.
3. The resealable plastic bag should then be placed into a biological specimen bag with absorbent material; and then can be transferred outside of the autopsy suite.
4. Workers receiving the biological specimen bag outside the autopsy suite or anteroom should wear disposable nitrile gloves.

Submission of Postmortem Clinical Specimens for SARS-CoV-2 Testing

This section applies to submission of postmortem NP swab, OP swab, and lung swabs

- Store specimens at 2-8°C and ship overnight to authorized laboratories on ice pack.
- Label each specimen container with the patient's ID number (e.g., medical record number), unique specimen ID (e.g., laboratory requisition number), specimen type (e.g., tissue), and the date the sample was collected.
- Complete a specimen submission form for each specimen submitted.

Paraffin-embedded tissue blocks

- In general, this is the preferred specimen and is especially important to submit in cases where tissues have been in formalin for a significant time.
- Prolonged fixation (>2 weeks) may interfere with some immunohistochemical and molecular diagnostic assays.

Wet tissue

- If available, we highly recommend that unprocessed tissues in 10% neutral buffered formalin be submitted in addition to paraffin blocks.

ANNEX 9

CASE TRACKING FORM

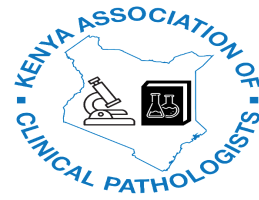
NAME OF INSTITUTION:							
KMPDC NO:							
PERSON IN-CHARGE:							
Staff No.	Date	Name	Age	Telephone number	Next of Kin: Full name and number	Designation	Role/Activity with the COVID 19 case

LIST OF CONTRIBUTORS

NAME	ORGANIZATION
DR LABAN THIGA	MINISTRY OF HEALTH
PROF. EMILY ROGENA	JOMO KENYATTA UNIVERSITY OF AGRICULTURE AND TECHNOLOGY/KACP
DR. JOHANSEN ODUOR	MINISTRY OF HEALTH/KACP
DR. EDWIN WALONG	UNIVERSITY OF NAIROBI/KACP
DR. NOELLE ORATA	MOUNT KENYA UNIVERSITY/KACP
DR. SERAH KAGGIA	JOMO KENYATTA UNIVERSITY OF AGRICULTURE AND TECHNOLOGY/KACP
DR. EVELYN CHEGE	MINISTRY OF HEALTH / KACP
DR. GEOFFREY OMUSE	AGA KHAN UNIVERSITY
DANIEL KIMANI	CENTERS FOR DISEASE CONTROL KENYA
EVELYN WESANGULA	MINISTRY OF HEALTH
FELISTER KIBERENGE	CENTERS FOR DISEASE CONTROL KENYA
LOYCE KIHUNGI	ITECH KENYA
MERCY NJERU	CENTERS FOR DISEASE CONTROL KENYA
VERONICA KAMAU	MINISTRY OF HEALTH



MINISTRY OF HEALTH



KENYA ASSOCIATION OF CLINICAL PATHOLOGISTS

Ministry of Health

Afya House, Cathedral Road,

P.O. Box 30016-00100,

Nairobi, Kenya

Telephone: +254-20-2717077

Email: ps@health.go.ke

Approved
D. M. Thiga
7.4.2020



**MINISTRY OF HEALTH
DIRECTORATE OF HEALTHCARE SERVICES
MEMO**

To: Ag. Director General for Health
From: Ag. Director, Directorate of Health care services
Date: 2nd April, 2020

INTERIM GUIDELINES ON HANDLING OF HUMAN REMAINS INFECTED WITH COVID-19 IN KENYA

Due to the outbreak of the COVID 19 disease in the many parts of the world, with Kenya included, the Government has come up with various interventions to reduce its transmission.

It is also expected that many patients may die from the disease as has been seen in other parts of the world, hence the need for a guideline in handling individuals who die from the disease in order to ensure that they don't transmit it.

Attached kindly find draft guidelines on handling of human remains infected with COVID-19 for your perusal, concurrence and approval.

[Signature]
Dr. Laban M. Thiga

AG. HEAD, DIRECTORATE OF HEALTH CARE SERVICES.

