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NATIONAL ENVIRONMENT MANAGEMENT AUTHORITY



The
**National
Guidelines**
for the
management
of
Covid -19
Waste

CORONAVIRUS

PREFACE

Following the outbreak of COVID-19, NEMA has developed guidelines for the sustainable management of waste and in particular biomedical waste. The provisions of these guidelines relate to segregation of biomedical waste, securing, packaging, storage and disposal of all generated medical waste within the country, to ensure a clean and healthy environment for all. Most of these items are single use such as; face masks, surgical gloves, sanitizer bottles, soap bottles and other related medical waste which could pose both cross infections and environmental risk.

These guidelines seek to enhance public engagement on the management of COVID-19 related biomedical waste which has become a huge menace in the country. The guidelines target the general public as well as institutions and organizations that are in the frontline in the fight against the COVID-19 disease. The guidelines provide a step by step direction on how communities and institutions can safely disposal of PPEs used in the management of COVID-19 to ensure that the environment and public health is not compromised.

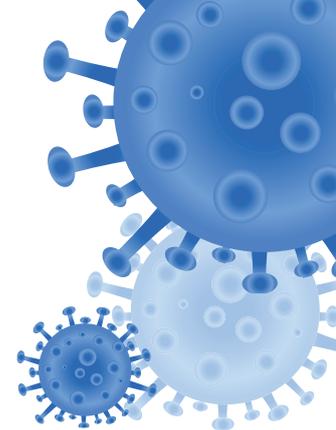
The guidelines also enhance public understanding, appreciation and their individual roles in the promotion of environmental management and sustainable biomedical waste management. These guidelines have been developed taking into cognizant the exiting legal and regulatory framework under the Public health and Environment Waste Management Regulations 2006. These guidelines have also taken into account the internationally accepted principles that guide systems development and maintenance to safeguard public health and the environment.

Am happy to present these guidelines for use by the general public and the institutions as we together fight the pandemic of COVID-19 disease.

Be safe and follow the government directives to combat COVID -19 in a clean and safe environment.



Mamo B. Mamo
AG. DIRECTOR GENERAL



COVID-19
CORONAVIRUS



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Introduction

The National Environment Management Authority (NEMA), established under the Environmental Management and Coordination Act, of 1999, is the Principal Arm of the Government of Kenya in the implementation of all policies relating to the environment.

Pursuant to the Environmental Management and Coordination Act (EMCA) of 1999, NEMA has developed regulations for the sustainable management of waste and in particular medical waste. The Environmental Management and Coordination (Waste Management) Regulations of 2006, has clear provisions on the management of Biomedical waste. The provisions relate to segregation of biomedical waste, securing, packaging, storage and disposal of all generated medical waste within the country, to ensure a clean and healthy environment for all.

The increased use of the safety materials against COVID-19 has led to massive generation of waste that can be considered to be infectious waste. These protective and safety materials are being used across the Country in hospitals, shopping places, offices, and homes. Most of these are single use items resulting to increased waste generation which if not well managed could pose both cross infections and environmental risks.

In line with the waste management protocol by the Ministry of Health dated 9th April 2020, and in accordance with the provisions of the Environmental Management and Coordination

(Waste Management) Regulations of 2006, the Director General advises that the following Guidelines be adopted to safeguard public health as well as the environment.

The health-care activities dealing with COVID-19 will protect and restore health and save lives. However, the amount of waste and by-products being generated will cause adverse environmental impacts. In general, of the total amount of waste generated by health-care activities, about 85% is non-infectious waste. The remaining 15% is considered infectious material that may be, toxic or radioactive.

Types of Waste

Under the COVID-19 the type of waste and by-products cover a diverse range of materials, as the following list illustrates:

- a) **Biomedical Waste** is referred to as waste that is contaminated with blood and other bodily fluids (e.g. from discarded diagnostic samples), cultures and stocks of agents from laboratory work (e.g. waste from autopsies and infected animals from laboratories), or waste from patients in isolation wards and equipment (e.g. swabs, bandages and disposable medical devices);
- b) **Pathological waste:** human tissues, organs or fluids, body parts and contaminated animal carcasses; sharps: syringes, needles, disposable scalpels and blades, etc.



- c) **Chemicals:** for example solvents used for laboratory preparations and disinfectants.
- d) **Heavy metals** contained in medical devices (e.g. mercury in broken thermometers) and batteries;
- e) **Pharmaceuticals:** expired, unused and contaminated drugs and vaccines;

Segregation of waste- The key to minimization and effective management of health care waste is segregation and identification of the waste. The waste producer is responsible of waste segregation and it should be done close to the source of waste production.

Disposal of waste- to ensure proper waste disposal the main methods used are incineration, shredding, and chemical disinfection.

Guiding Principles

These Guidelines has taken into account the four internationally accepted principles that guide systems development and maintenance to safeguard public health. These are the precautionary principle, polluter pay principles, duty of care and proximity principle.



1. Precautionary Principle

Waste handlers are required to be prepared and responsible for the protection, preservation and restoration of the environment. Medical practitioners should be cautious when handling medical waste to ensure that they protect themselves, those around them and the environment.

2. Polluter Pays Principle

All waste producers are legally and financially responsible for safe handling of waste, environmentally sound disposal of waste and creating an incentive to produce less waste.



3. Duty of Care Principle

The principle stipulates that any person handling or managing substances or related equipment is ethically responsible for applying utmost care.

4. Proximity Principle

The principle recommends that treatment and disposal of medical and waste take place as near as possible to the point of production as is technically and environmentally possible to minimize risks involved in transport.

Color Code Systems used in Kenya

TYPE OF WASTE	COLOR OF CONTAINER AND MARKINGS	TYPE OF CONTAINER
Sharps	Yellow (Marked 'Sh's')	Puncture proof, strong leak proof plastic bag with biohazard symbol
Highly Infectious	Red (Marked Highly)	Containers capable of being autoclaved
Non- infectious non-clinical	Black	Plastic Bag or container
Chemical and Pharmaceutical	Brown	Plastic bag or Container
Radio Active Waste	Yellow with black radioactive symbol	Lead Box Recommendations

Since the first case of Corona Virus Disease was reported in Kenya, the government outlined prevention measures which every person in Kenya is expected to adhere to. The measures includes the use of personal protective equipment such as;

1. Face masks for those infected with the virus to curb further spread and those involved in the care of the Corona infected people as well as use by the public.
2. The use of surgical gloves for the protection against surfaces or items contaminated with the virus.
3. The use of alcohol based sanitizers for cleaning the virus from hands or surfaces and the use of soaps for handwashing.

Justification

The increased use of the safety materials against COVID-19 has led to massive generation of waste. These protective and safety materials are used across the Country in hospitals, shopping places, offices, and homes. Most of these are items, especially the face masks, are single use items, resulting to increased waste generation which if not well managed could pose both cross infections and environmental risks. The COVID-19 prevention measures results in generation of waste which could be contaminated with the Virus and is thus regarded as medical waste which should be disposed of as per the Environmental Management and Coordination Act (1999) and EMC (Waste Management) Regulations of 2006 and the Ministry of Health, Health Care Waste Management Guidelines.



FACTS / OBSERVATIONS	RISK ASSESSMENT
Wearing of face masks and gloves resulting into individual waste accumulated in crowded public areas such as shopping areas, market places, health clinics and quarantine centres.	Avenues for infection / and cross infectious and corona virus spread in public areas
	Providing opportunities for picking and reselling of used gloves and facemasks since there are no control waste management measures and the demand is higher than the supply of these materials
	Waste scavengers/collectors risk infections and being carriers of the virus
Infectious waste such as used gloves and facemasks are not segregated and is mixed with household waste, and not stored in tight lid bins or in sealed bags	Possibility of sources of infection / diseases spreading occasions
	Possibility for unlicensed or un authorized waste handlers collecting the infectious waste
	If the infectious waste is not managed it will be disposed in rivers, seas or on the road side
Infectious waste recycled	Source of cross infection and spread of the virus in the recycling/sorting facilities
Lack of adequate for biomedical waste receptacles in the quarantine and isolation centres	Production and importation of waste receptacles that are substandard
Management biomedical waste in the overcrowded quarantine and isolation centres and overloaded waste receptacles	Unauthorized waste handlers taking advantage of the situation to dispose the waste
	Unlicensed waste handlers submitting fake licenses and documents to the centres to handle the waste illegally
	Illegally transporting the infectious waste using unlicensed vehicles and disposing in unlicensed facilities or waste is buried or openly burned

Purpose of the Guidelines

The National guidelines are aimed at outlining procedures that must be followed in the management of COVID-19 infectious waste in compliance with the provisions of the EMC (Waste Management) Regulations 2006 on segregation, securing, packaging, treatment and disposal as provided in the Seventh, Eighth and Ninth Schedules of the Regulation and the Health Care Waste Management Guidelines under the Ministry of Health.

Specific objectives

The waste generated include: used face masks, surgical gloves, sanitizer bottles, soap bottles, personal protective equipments (PPE) and other related medical waste. To manage this waste the guidelines seeks to achieve the following objectives:

1. To cautiously handle, the COVID-19 generated waste by segregating at source and ensuring that the infectious waste is not mixed with general waste;
2. To ensure that the waste is collected and transported by the NEMA licensed hazardous waste handler.
3. To ensure the waste is disposed of through licensed hazardous /infectious disposal facilities.

In light of the above, the following guidelines in the entire waste management cycle shall be strictly observed. The scope of the Guidelines covers management at household level, gated and apartment residential areas, institutions and office blocks in the urban centres as well as public and communities in the





Part 1: Management of COVID-19 related waste in public, community and household levels

Corona virus can survive for long on surfaces and therefore the used masks, gloves and other items may become new sources of infections. If the used masks, gloves and sanitizer bottles are tossed in confined spaces such as elevators, market places, offices, matatus/ buses among others they may contaminate the environment, posing a potential threat to people within it.

Further, it is inappropriate to mix contaminated masks/gloves with household waste. The situation in our country is such that municipal waste or garbage segregation is non -existence and mixed waste commonly exists is our household as well as in the dumpsites. The mixture of contaminated waste and recyclable waste may cause a potential danger to waste collectors when they scavenge the waste bins to collect recyclable items.

In worse case scenatio, if someone just throws a used mask on the street, someone might pick it up, or worse try to collect them to sell as second-Hand. For the safety of others and themselves, the public have to take care of their used masks. Disinfecting them will help ensure the used masks do not become a second source of the corona virus infection. Thus, these guidelines emphases on the need to compel the public to ensure the used masks, gloves are treated as contaminated items and must be disposed as infectious waste.

rural settings. The Guidelines further outlines steps for the management of infectious waste in hospitals, isolation and quarantine centres. The outlined guidelines and procedures are provided for in Part VI, Regulations 28-34 of the Environmental, Management and Coordination (Waste Management) Regulations 2006 on segregation, securing, packaging, treatment and disposal as provided in the Seventh, Eighth and Ninth Schedules of the Regulation and the Health Care Waste Management Guidelines under the Ministry of Health.

The guideline is in two parts; part one outlines management of these waste in public and community environment and part two gives management guidance in hospitals, quarantine and isolation centres.



The following guidelines will then be followed:

Special bins shall be set up in communities as centralized disposal points for the used masks and shall be supervised by the Public Health Officers or their agents:

- a) In gated community, apartments, residential areas, factories, institutions, office blocks, the management or the owner of such facilities will provide medical waste pedal bins that will have biohazard bin liners. The management/owners will engage a licensed hazardous waste handler to collect and transport the infectious waste for a final disposal in accordance Environmental Management and Coordination (Waste Management) Regulations of 2006. Hence forth referred to as - EMC (Waste Management) Regulations of 2006.
- b) In the rural and small urban centers at the ward level, the County Governments shall provide the same waste bins as in (a) above that will be placed either at the Chiefs Camps, ward offices, or health clinics and any other appropriate designated places that will be communicated to the public. Collection of such hazardous waste from such designated places shall be done through a licensed infectious waste handler.
- c) In the public places including markets, bus/matatu terminals, the county government shall provide to the general public Covid-19 related medical waste pedal receptacles that will



have biohazard bin liners installed strategically in the public places and well secured and labelled infectious waste. Each of the county government shall engage a NEMA Licensed infectious /biomedical waste handler as required by EMC (Waste Management) Regulations of 2006.

- d) If no special garbage bins are available, residents could spray disinfectant on both sides of their used masks with recommended disinfectants and fold them up before putting them into a sealed bin liner in the dustbin.



Part 2: Guidelines for Handling, Treatment and Safe Disposal of Waste Generated during treatment, diagnosis/ quarantine of COVID -19 Patients

This part of the Guidelines covers the Management of medical waste and disposable Personal Protective Equipment (PPE) in hospitals, quarantine and isolation Centres. The protective gear already used by medical staff and patients is already designated as medical waste. The EMC (Waste Management) Regulations of 2006 Regulations 28 -34 sets out clear rules on the classification, collection, transportation and disposal of medical waste.

The management of waste in the hospital settings, quarantine and isolation centres will adhere to the set rules and procedures in the Waste Management Regulations as well as the Medical Health Care Guidelines. There exist regulations and procedure to follow while dealing with medical waste in hospital setting. However, with the outbreak of the COVID-19, there has obviously been a high demand for protective equipment such as face masks among ordinary people, with the subsequent generation of a huge quantity of what may be considered medical waste.

Consequently, the challenge is how to cope with this massive amount of medical waste, particularly the used face masks, disposal PPE among other waste within hospitals, quarantine and isolation centres.

The Ministry of Health shall engage licensed companies

to collect, transport and do the final disposal of medical waste. The Guidelines outlines the procedures to be followed in this sector as provided for in Environmental Management and Coordination (Waste Management) Regulations of 2006:

1: COVID-19 ISOLATION WARDS

Health care facilities having isolation wards for COVID-19 patients need to follow these steps to ensure safe handling and disposal of biomedical waste generated during treatment:-

- Keep separate coded bins/bags/containers in wards and maintain proper **segregation** of waste as per the Regulations 28-34 of EMC (Waste Management) regulations, 2006.
- As a precaution double layered bags (using 2 bags) should be used for collection of waste from COVID-19 isolation wards so as to ensure adequate strength and no leaks.
- Collect and store biomedical waste separately prior to handing over the same to NEMA licensed waste collectors. It is important to use a dedicated collection bin labelled as “COVID-19” to store all COVID-19 waste and keep separately in temporary storage room prior to handing over to authorized Biomedical Waste Collectors.



- General waste not having contamination should be disposed as solid waste as per the EMCA (Waste Management) regulations, 2006.
- Maintain a separate record of waste generated from COVID-19 Isolation Wards.
- The surface of containers/bins/trolleys (inner and outer) used for storage of COVID-19 waste should be disinfected with 1% Sodium Hypochlorite Solution (bleach).

2. QUARANTINE CENTRES/FACILITIES/HOME CARE FOR COVID-19 SUSPECTED PATIENTS

The Quarantine Centres need to follow these steps to ensure safe handling and disposal of waste:

- For routine general waste generated from quarantine centres, waste should be disposed of per the EMCA (Waste Management) regulations, 2006 guidelines. However, for the biomedical waste, if any, should be collected separately in **YELLOW** coloured bags/bins or any biohazard containers.
- In case of home-care for suspected patients, biomedical waste should be collected in yellow bags and handed over to NEMA licensed Waste Collectors.

3. GUIDELINES FOR WASTE COLLECTORS

- Handle carefully all biomedical waste to avoid spillage of the same on the road/Highways during transportation.
- Ensure regular sanitization of workers involved in handling and collection of biomedical waste.
- Workers shall be provided with adequate PPEs, including three (3) layer masks, splash proof aprons, gowns, nitrite gloves, gumboots and safety goggles.
- Use a dedicated vehicle to collect COVID-19 ward waste.
- Vehicle should be sanitized with sodium hypochlorite or any appropriate chemical disinfectant after every trip.

The National Guidelines on the management of COVID-19 generated waste shall take effect immediately.

Wash your hands, sanitise, wear face masks, but dispose responsibly!

Our Environment, Our Life, Our Responsibility

Mazingira Yetu, Uhai Wetu, Wajibu Wetu





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