



NATIONAL ENVIRONMENT MANAGEMENT AUTHORITY

THE NATIONAL GUIDELINES FOR THE MANAGEMENT OF COVID -19 WASTES



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 of 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 and infectious waste .These protective and safety materials are being used across the Country in hospitals, shopping places, offices, and homes. Most of these are items are single use resulting to increased waste generation which if not well addressed could pose both cross infections and environmental risk.

In line with the waste management protocol by the Ministry of Health date 9th April 2020 , and in accordance with the provisions of the Environmental Management and Coordination (Waste Management) Regulations of 2006 , the Director General advise that NEMA, the following Guidelines be adopted to safeguard public health as well as the environment

The health-care activities dealing with COVID19 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) **waste** is referred to as waste that 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, disinfectants, and

- 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 Principles

The principle stipulates that any person handling or managing substances or related equipment is ethically responsible for applying the 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
	Yellow	Strong leak proof plastic bag with biohazard symbol
Highly	Red (Marked Highly)	Containers capable of being autoclaved
Non-/ noninfectious non-clinical	Black	Plastic Bag or container
Chemical and	Brown	Plastic bag or Container

Pharmaceutical		
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 measure 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 services or items contaminated with the virus.



3. The use of **alcohol based sanitizers** for cleaning the virus from hands or services. The use of **soaps for handwashing**.



Justification

The increased use of the safety materials against Covid-19 has led to massive generation of waste that can be considered and infectious 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 resulting to increased waste generation which if not well addressed could pose both cross infections and environmental risk. 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.

Purpose of the Guidelines

The National guidelines is 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 generate include used face masks, surgical gloves, sanitizer bottles, soap bottles, and other related medical waste. To manage these waste the guideline seeks to achieve the following objectives:

- 1: To cautiously the waste, the covid-19 generated waste will segregated at source and should not be mixed with general waste;
- 2: To ensure that the waste is collected and transported by the NEMA licensed infectious waste;
- 3: To ensure the waste is disposed through licensed infectious disposal facilities . The waste should be handled with caution Waste generated includes the **empty sanitizer bottles, soap bottles, the used face mask and surgical gloves**

In light of the above, the following guidelines in the entire waste management cycle shall be strictly observed;

These guidelines on management on waste resulting from COVID -19 Pandemic outlines procedures that must be followed in all sectors of environment . the scope of the Guidelines covers management at household level, gated and apartment residential areas, institutions and office blocks in the urban centers as well as public and communities in the rural settling. The Guidelines further guides management of the infectious waste in the hospitals, isolation and quarantine centers. The outlined guidelines and procedures are provided for in the regulations 37-43 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 the management of these waste in public and community environment and part two gives guidance in the hospital , quarantine and isolation centers

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

Corona virus can survive for long in surfaces, the used masks, gloves and other items may become a new source of infection. If the waste masks, gloves and sanitizer bottles are tossed in a confined space such as an elevator, 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 that municipal waste or garbage segregation is non -existence and mixed waste commonly exists in our household as well as in the dumpsites. The mixture of contaminated waste and recyclable waste may cause a potential danger to rubbish collectors when they scavenge the waste bins to collect recyclable items.

In worse situation, if someone just throws a used mask on the street, someone might pick it up, or worse try to collect them to sell 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 coronavirus infection. Thus, these guidelines emphasizes 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

The following guidelines will then be followed:

Special bins shall be set up in communities as centralized disposal points for the used masks of residents.

- a) In gated community, apartment's 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 infectious waste handler to collect and transport the infectious waste for a final disposal in accordance to the regulations 37- 43 of the 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 bin as (a) above that will be placed either at the Chief Camps, ward offices, or health clinic and any other appropriate designated places that will be communicated to the public. Collection of such hazards 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 to provide to the general public Covid-19 related waste r medical waste pedal receptacle that will have biohazard bin liners installed strategically in the public places and well secured and labelled and infectious waste. Each of the county government shall engage a NEMA Licensed infectious /Biomedical waste handlers as required by Regulations 37-43 - EMC (Waste Management) Regulations of 2006.
- d) At the family unit in the rural areas , the used masks and gloves can be disinfected by use of Sodium hypochlorite (0.5 % NaOCl diluted to 1:10 as recommended by and then disposed in pit latrines,

- e) If no special garbage bins are available, residents could spray disinfectant as in (d) above on both sides of their used masks 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 Management of medical waste and disposable Personal Protective Equipment (PPE) in quarantine and isolation Centers. The protective gear already used by medical staff and patients is already designated as medical waste. The EMC (Waste Management) Regulations of 2006 Regulations 37-43 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 centers will adhere to the set rules and procures in the Waste Management Regulations as well as the Medical Health Care Guidelines. There exist regulations and procedure to follow in dealing with medical waste in hospital setting. However, with the outbreak of the COVID19, 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.

Waste from the quarantine and isolation centers will be treated and managed and disposed as medical waste. 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 the Regulations 37-43 of the 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 37-43 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.

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, should be disposed off 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, nitrile 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 Guideline on the management of covid-19 generate waste shall take effect immediately.

Mamo. B. Mamo
Ag. Director General

Our Environment, Our Life, Our Responsibility
Mazingira Yetu, Uhai Wetu, Wajibu Wetu