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GUIDELINES ON VETERINARY MEDICINAL PRODUCTS WASTE MANAGEMENT

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Introduction

Veterinary Medicinal Products (VMP) waste includes expired, unused, spilt, and contaminated pharmaceutical products, drugs, vaccines and sera as well as packaging materials that are no longer required and need to be disposed of appropriately. The category also includes discarded items used in the handling of pharmaceuticals, such as bottles or boxes with residues, gloves, masks, connecting tubing and drug vials. Generally, there are two major categories of pharmaceutical waste as depicted from pharmaceutical management point of view namely; pharmaceutical waste that include expired or not used drugs consisting of syringes and vials that are disposed by domestic households and Veterinary clinics and pharmaceutical companies. Ideally, Pharmaceuticals are discarded and treated by high temperature (i.e. above 1,200°C) incineration.

Purpose of the guidelines

In order to safeguard the human and animal health and the environment, proper handling of pharmaceutical waste should be maintained. These guidelines should be used together with other existing laws on safe management of pharmaceutical waste including but not limited to: The Environmental Management and Co-ordination Act and the Environmental Management and Co-ordination (Waste Management) Regulations.

Classification of Veterinary Medicinal Products waste

- i Expired
- ii Improperly sealed
- iii Damaged, unexpired and improperly stored
- iv Improperly labelled
- v Counterfeit, substandard and adulterated
- vi Prohibited
- vii Unauthorized
- viii Packaging materials

Veterinary Medicinal Products minimization

Pharmaceutical waste minimization is always preferable to generating pharmaceutical waste and then managing its subsequent disposal. To minimize pharmaceutical waste, the following practices are recommended:

- (i) Checking of the expiry date of all pharmaceuticals at the time of delivery
- (ii) Refusal to accept short-dated pharmaceuticals from a supplier
- (iii) Ordering pharmaceuticals from suppliers who accept the return of short dated stock
- (iv) Implementing a First Expiry First Out stock control system
- (v) Dispensing of all the medicines in a given container

Responsibility of a dealers in Veterinary Medicinal Products

Any person whose activities generate pharmaceutical waste shall collect, segregate, store, transport and dispose such pharmaceutical waste in the manner provided for in these guidelines. Without prejudice to the foregoing, any person whose activities generate pharmaceutical waste has an obligation to ensure that such pharmaceutical waste is transferred to a person who is licensed to dispose such pharmaceutical waste in an approved pharmaceutical waste disposal facility.

Procedures for application to dispose Veterinary Medicinal Products

Any person who intends to dispose Veterinary Medicinal Products waste shall adhere to the following procedure:

- a) Request in writing to the Chief Executive Officer of VMD
- b) The request shall be accompanied with a list of products to be disposed of and should state clearly trade name, generic name and strength (where applicable), dosage form, pack size, quantity, manufacturer, batch number and a contract with the destruction company which should be licensed by National Environment Management Authority (NEMA)
- c) Once the request has been received by VMD, the directorate shall acknowledge and inform the applicant through a letter

VMD shall send inspectors to the premises to verify and authenticate the information submitted, supervise the collection of the pharmaceutical waste by the destruction company

Handling of Veterinary Medicinal Products at a premise

In order to manage properly unfit medicinal products at a premise, the following requirements shall be adhered to:

- (i) Maintain a register book for pharmaceutical waste products.
- (ii) Keep them into different categories by dosage form such as: -
 - a) Solids, semi-solids and powders: powders for injection, boluses, creams.
 - b) Liquids: Solutions, suspension, aerosol etc.
- (iii) Keep separately medicines which fall under controlled drugs, antibiotics and any other hazardous medicines.
- (iv) Keep in containers according to their dosage forms to facilitate verification exercise, sorting and selection of disposal method.
- (v) Demarcate an area for keeping containers of pharmaceutical waste which shall be labelled conspicuously with words "Expired products – Not for Sale"
- (vi) Maintain safe custody of pharmaceutical waste products in registered premises until they are disposed to avoid pilferage.

Packaging of Veterinary Medicinal Products waste

Veterinary Medicinal Products waste shall at the point of generation and at all stages thereafter be segregated from other categories of waste. Efforts should be made to ensure that VMP wastes are in their original packaging to aid identification and prevent reaction between incompatible molecules. All pharmaceutical waste shall be securely packaged for storage or transport in brown plastic bags or brown rigid containers which shall be labelled legibly in English or Kiswahili with the following information.

1. The identity of the pharmaceutical waste
2. The name, physical address and telephone contact of the owner of the pharmaceutical waste
3. The total weight of the pharmaceutical waste
4. Warning or caution statements which may include any of the following as appropriate:
 - a) the words "WARNING", "CAUTION", "POISON" or "DANGER! KEEP AWAY FROM UNAUTHORIZED PERSONS"
 - b) a pictogram of a skull and 2 crossbones

Waste storage bags for pharmaceutical waste needing incineration should not be made of chlorinated plastics.

Storage of Veterinary Medicinal Products waste

All VMP shall be stored in designated quarantine stores away from usable pharmaceuticals. These storage areas should be cleaned regularly. Storage facilities for pharmaceutical waste should be labelled on the outside with the hazard sign of a skull and 2 crossbones and with the 'No Entry for Unauthorized Persons' signage.

Destruction of pharmaceutical waste

Destruction of VMP shall involve the following procedures:

- a) A VMD Inspector shall supervise the transport of consignment from the owner's premises to the disposal site for destruction exercise.
- b) The destruction exercise shall be supervised by Owner of the VMP waste, representative from the destruction company and VMD Inspector.
- c) VMP waste shall be transported in a closed motor vehicle to avoid pilferage.
- d) Supervisors shall wear protective gears such as overalls, gloves, masks, caps and boots during the exercise.
- e) Upon completion of the exercise, a Certificate of Destruction shall be duly filled in and signed by the supervisors and owner/owner's representative.
- f) The VMD inspector and the owner of the VMP waste shall each get a copy of the Certificate of Destruction.

Methods of Veterinary Medicinal Products disposal

Incineration:

Incineration is the controlled method of burning the waste. It is one of the oldest and most commonly used method of waste management. In this process, the organic waste is burnt in the high temperature producing mainly gaseous emissions, including steam, carbon dioxide, nitrogen oxides, and certain toxic substances. The gaseous emissions can be toxic as well. The incinerator varies from the pit burner to the very sophisticated high temperature running incinerator. Incinerator when operated at optimum temperature kills the pathogen but if it is run at lower temperature, it causes more harm than benefit. Pressurized gas containers, reactive chemical waste, radiographic wastes, waste with high mercury or cadmium content, etc. should never be incinerated.

Chemical disinfection:

Chemical disinfection is used to kill microorganisms on medical equipment, floors and walls. It is also used to treat the health-care waste. Chemicals are added to waste to kill or inactivate the pathogens. This method is appropriate for treating liquid waste such as blood, urine, stools, or hospital sewage. However, other waste can also be disinfected using chemical disinfection, before disposal. Anatomical parts, animal carcasses are usually not disinfected.

Autoclaving:

Autoclaving is an efficient wet thermal disinfection process which is done using an autoclave. Autoclaving is the processes of treatment in pressurized condition. Reusable medical equipment is sterilized by this process. An autoclave is used to sterilize reusable medical equipment like surgical equipment, laboratory instruments, pharmaceutical items, and other materials. This method can be used to sterilize solids, liquids, hollows, and instruments of various shapes and sizes.

Encapsulation:

In this process, cubic boxes made of high-density polyethylene or metallic drums, are filled with sharps and chemical or pharmaceutical wastes. These cubic boxes are not completely filled. The remaining portion is covered with mortar, dried and sealed before disposal. Encapsulation is very effective in reducing the risk of scavengers or stray animals gaining access to the hazardous health-care waste. Encapsulation is not suitable for non-sharp infectious waste, but may be used in combination with burning of such waste.

Inertization:

Inertization is the process of mixing waste with cement and other substances before disposal. This reduces the chance of mixing of toxic substances contained in the waste to surface water or groundwater. Suitable for pharmaceuticals and for incineration ashes with a high metal. The typical proportions for the mixture is: 65% pharmaceutical waste, 15% lime, 15% cement and 5% water. Inertization however is expensive and not suitable for wider variety of waste

Land disposal:

Land disposal is the way of disposal of waste rather than its treatment. There are two distinct types of waste disposal to land; open dumps and sanitary landfills. Open dumps are unmanaged and waste are scattered as well. The risk of the further transmission of the infection or disease is high. Sanitary landfills are scientific and designed for the disposal of hazardous waste. Sanitary landfill prevents contamination of soil and of surface water and groundwater. Sanitary landfill also checks the air pollution and contact with the public. Wastes are treated before disposal and managed on daily basis.