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## Hazardous Waste Management at Our Lady of Lourdes Hospital, Ihiala, Anambra State

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### ABSTRACT

Hazardous waste products are drugs that are now not highly required and thus have no actual or customer value at an allocated time or location. Countless raw materials used or manufactured in metabolic pathways must have hazardous qualities. The important hazardous waste publications usually involve heavy industry, physician, and residential squanders, and actually happen in stable, solvent, or vapor. These waste products seem to be consolidated and/or just have inherent or inherent physiochemical individuality of cytotoxic activity, combustible material, standard test, and reactions. Managing hazardous wastes is always of incredible symbolic importance to people, socio, environmental, and economic health conditions. Hazardous wastewater reuse process in the maternity ward may not be in concurrence with the top global methodologies. Many harmful byproducts are tossed carelessly, which encompasses hazop to the climate and confronted public health troubles. This investigation will inform the general public, vested interests in environment protection, student academic, and governmental policy producers on the concerns of waste disposal focusing on health facilities with a view to assessing best practices to fight the scourge linked to poor hazardous waste management. But progress remains a challenging task, such there still is a lack of available effective steps to still be chosen to take towards workable practices to the issues.

### INTRODUCTION

There seems to be no adequate meaning of the word of hazardous, as so many organisational or states specify hazardous separately, and *yet all* focused toward a unified purpose. Waste products are considered dangerous when they show one of these perilous character traits, which includes corrosive, shrapnel, decaying, noxious, fire resistant, known to cause cancer, as well as many other debilitating effects on health and environmental (Kummer, 1999). Barring, experts have conceptualized and defined toxic materials as a specific attribute of lose with inherent physiochemical individuality, like intoxication, ignitability, abrasive, carcinogenicity, and other qualities (Gu ou encore Abdel, 2014).

Another meaning of the word says so here toxic waste that's any inappropriate or thrown-out particles (excluding radioactive particles) that, due to its excellent mechanical, pesticide or infective features could cause considerable jeopardy to human and animal health or the environmental even before incorrectly regarded, deposited, shipped, disposed of or has been Sources of waste products usually involve e-products, cars and trucks, relevant medical merchandise, source of energy merchandise (e. G., motor oil), gas exploration & production and some others (Mmerekou de abou., 2016). The main quality among those deny is also that, in a direction, they are potentially harmful to animals and the environment, chiefly, if treated, shipped or disposed of in a self-conscious method (White and Heckenberg, 2011).

In furthermore, houses and house work are now also understood to produce hazardous as a result usage product

lines which might control definite hazardous materials or metals. Those toxins encompass inks, cleansers, battery cells, colourants and nail polish removers, oil product lines, weed killers (Irish Environmental Protection Agency (EPA), 2013), skincare products, cuisine hfcs, and ewaste. Perilous solid effluents represent a significant environmental risk and public health (Naviaa and Bezama, 2008). Important dangerous waste products implicate used oil, oil-contaminated metals, and just used liquids (Thanh donc ahmad., 2010). Another citation is health-related infrastructure, like clinics, health care offices, institutes, whose wast of time may contains harmful and dangerous materials, gene-destroying or radionuclides, psychotic lose, metal knives (like syringes, and such like.), needle, surgical instruments, cutlery, and shards of glass), biomedical waste, huge quantities serum, and blood donations. (Yan ou encore ahmad., 2011; Sartaj and Arabgol, 2015).The that's why many industrialized nations, such as US and maybe some states parties of the European Union, are the central turbines of biohazardous material on this planet (Samanlioglu, 2013). Nigeria is revealed to be the greatest alternator of hazardous materials in Africa, predicted at 2,469,000 tonnes each year (Akpan and Olukanni, 2020). But that said, the per gross domestic product (gdp transportation of hazardous lose in Africa is expected at 20.1 kg / human / year. Potentially dangerous wastewater treatment is that of extremely large value due to its impacts on the climate, socio-economics and public health. In this memorandum, the handling of hazardous lose in Nigeria is considered whatsoever different phases from its publications to its disposal as lose. This oversee should be to emphasise

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toxic waste stimulants, their study and experience and to provide solutions for the problems lifted in managing biohazards material in Nigeria.

This research project will inform the general public, sustainable development relevant parties, colleges, public decision developers on hazardous waste management challenges with a concentrate on Nigeria with a view to characterizing management practices to fight the potential danger related to the malfeasance of hazardous. This study could be useful as a facility for the other scholarly and previous researchers interested in carrying out much more research in the area fairly late, if adhered, it will show up and provide a new excuse to the discussion.

**MATERIAL AND METHOD**

This survey will enlighten the general public, relevant parties in environment protection, lower classmen, and governmental policy developers on the concerns of waste disposal focusing on Nigeria with a view to assessing management approaches to fight the scourge coupled with low waste disposal. This study will also serve as an economic base to some other academics interested in turning out a little more research on this topic successively, if adapted may go to an magnitude can provide new excuse to the theme.

**Method of Waste Management**

The following is the steps for hazardous waste management

**Identification of Hazardous Waste**

The first stage of waste disposal is identifying the type of waste of time show, all of this waste of time is noted by their harmful characterization such like Ignitability, given in table 1, toxic effect and conductivity. (Environ offer. The / word-press / recognizing biohazards material)

**Categories and Sources of Hazardous Waste**

The next step is to categories the various types of hazardous waste sources where is being generated in the hospital.

**Health Risk of Hazardous Waste in The Environment**

This determines the possible health effects of the hazardous waste generated in the hospital and possible way to control it.

**Management**

This is the end of the process where in compliance set by the law for proper related to the disposal will also be pursued. As well as state legislation the situation, the maternity ward may even have the regulatory and criteria

**Table 1:** Sort Waste

| Types of waste                          | Color- coding | Types of containers       |
|---|---------------|---------------------------|
| Household refuse                        | black         | Plastic bag               |
| Sharp                                   | Yellow        | Sharp container           |
| Waste entailing a risk of contamination | Yellow        | Plastic bags or container |
| Anatomical waste                        | Yellow        | Plastic bag or container  |
| Infectious waste                        | yellow        | Plastic bag or container  |
| Chemical and pharmaceutical waste       | brown         | Plastic bag or container  |

that should be pursued with respect to the requirements, the toxic waste will just be controlled for the good thing about those.

**RESULT AND DISCUSSION**

The usage and waste created per bed in the health center enough that accumulated in one month utilizing regular garbage baskets both highly contagious and waste disposal. Varieties and volume of waste created from Our Lady of Lourdes doctor’s office tends to vary with the clinical disciplines and their wastewater treatment profession. The information capture measures the amount of wastage, including the bandwidth of care and

medical specialisms offered in the maternity ward. It has already been statistically significant rationalized that the specific medical organization affects the production of infective and waste in the doctor’s office, the amount of biomedical waste and the number of in-service users can really be related to the total number of bedrooms and bed accommodation in the maternity ward.

**Categories of Waste and Their Identification**

Our lady of Lourdes which has both a hospital and nursing school generate a high rate of waste in the environment, the rate of waste generated can be categories as the follows

**Table 2:** Category of waste and its description

| Waste category Hazardous health-care waste | Descriptions and examples  |
|--|--|
| Sharps Waste                               | Used or unmarked equipment (e. G., injections, i. V. And other cannula; auto-disable squirt bottles; hypodermic needles with appended lancets; influx wants to set; surgical instruments; peristaltic pumps; blades; serrated knives; sharp objects) |

|  |   |
|--|---|
| Infectious Waste                           | Waste implied to manage infective organisms because then brings up a risk of complications transceiver (e. G., waste heavily contaminated with blood and most other fluids; research station value systems and pathogenic microbes bank stocks; waste including treated wastewater as well as other commodities that are now in interplay with clients infected with contagious viral underlying condition in hopelessness  |
| Pathological Waste                         | Human cells, organ systems or fluids; limbs; foetus; unmarked medical products. Pharmaceutical loss, genotoxic lose Pharmaceuticals which are ended none or longer wanted; goods poisoned by or comprising pharmaceuticals. Take additional steps waste containing stimulants with neurotoxic attributes (e. G., waste containing direct cytotoxic drugs- commonly employed in treating cancer: carcinogenicity pesticide). |
| Chemical Waste                             | Waste enclosing chemical compounds (e. G., research facility 's reagent; cinema builder; cleaning products that have been lapsed or just no needed; acetone; waste with large content of toxic heavy, e. G., battery cells; broken measuring devices and blood-pressure measurements)   |
| Radioactive Waste                          | Waste uses radioactive drugs (e. G., unopened fluid from radiation treatment or research laboratory; heavily polluted glassware, packages, or microfiber paper; uric acid and effluent from patients were treated or examined with unsealed transuranic elements; enclosed reports)   |
| Non-Hazardous or General Health-Care Waste | Waste that would not photograph any specific biochemical, pesticide, radioisotopes, or physiology threat.   |

**Health Risks of the Waste in the Environment**

Health-care lose encompasses potential hazardous microscopic organisms which can cause disease hospitalized patients, health workers and the general populace. Side possible risks include drug-resistant microbes that expand from health facilities into the environment.

Adverse health outcomes provided by healthcare waste of time and by-products now include: sharps-inflicted injury problems; noxious visibility to generic medicines, especially, antimicrobial drugs and neurotoxic illicit substances cleared into the surroundings, and to stimulants like mercury or pollutants, during the processing or waste disposal of health care waste products; intense heat emerging in the frame of reference of chlorination, forced sterilization or sewage treatment operations; Air harmful emissions arising on account of the update

of fine particulates during healthcare waste scorching; Thermal injuries occurring together with open dumping and the action of human waste smoldering

**Quantities and Source Materials of Hazardous**

I recognized such a waste ranges with quantities and the form of service provided to the patient, at Our Lady of Lourdes doctor's office there's several third largest publications of appropriate waste which are the fan bases Non-infectious (Hazardous waste of time) created at the doctor's office is rising faster than the hazardous waste per the review about 85% is non-hazardous while 15% is hazardous. Our female of Lourdes had around 200 bed bandwidth and the average of appropriate waste huge volumes per bed had always been 0.2kg and 9.78kg of waste.

**Table 3:** Sources of Hazardous Waste

| Location     | Sharp   | Infectious and Pathological Waste   | Chemical, Pharmaceutical, and Cytotoxic   | Nonhazardous or General Waste   |
|--------------|---|---|---|---|
| Medical Ward | Hypodermic lancets, i. V. Collection cannulas, torn franchisee, and sachets | Dressings, gauze, bandages, and textile infected with plasma or bodily excretions; garments and camouflages heavily polluted with brain matter or biological fluids | Broken thermometer to measure and blood-pressure industry benchmark, spillage medicinal products, got to spend sanitizers | Packaging, kitchen scraps, paper, blossoms, incomplete saltwater jugs, nonbloody cloth nappies, nonbloody i. V tubing and suitcases |

|                        |   |  |  |  |
|------------------------|---|--|--|--|
| Operating Theater      | Needles, i. V. Holds, knives, turbine blade, rotary cutters   | Blood and some other extracellular fluid; compressed air casings; garments, accessories, headgear, dressings and many other waste of time poisoned with blood and extracellular fluid; collagenous, glands, fetal, parts of the body | Spent sanitizers<br>Waste analgesic gases  | Packaging; untainted long dresses, boots, goggles, baseball caps, and sock includes                            |
| Laboratory             | Needles, shattered glass, Petri dishes, tumblers, needles, shattered glass, Petri dishes, test tubes and coverslips, torn pipes | Blood and extracellular fluid, infected host bones, coils and cartons polluted with blood or biological fluids   | Fixatives; formalin; xylene, acetone, butanol, volatile compounds, and some other acetone; broken testing facility measuring devices | Packaging, paper, plastic containers<br>Non  |
| Pharmacy Store         | Non   | Expired drugs, spilled drugs   | Non  | Packaging, paper, empty containers   |
| Radiology              | Non   | Silver, fixing and fixing strategies; acetate; solvent   | Non  | Packaging, paper   |
| Chemotherapy           | Needles and syringes  | Bulk therapeutic agents waste of time; franchisee, knee pads, and many other information heavily polluted with chemotherapeutics; heavily polluted faeces and urinary  | Non  | Packaging paper  |
| Vaccination Campaigns  | Needles and syringes  | Bulk vaccine waste, vials, gloves  | Non  | Packaging  |
| Environmental Services | Broken glass  | Disinfectants (glutaraldehyde, phenols, etc.), cleaners, spilled mercury, pesticides   | Non  | Packaging, blossoms, newspaper ads, magazine covers, brown paper, plastic carton, yard and decomposing organic |
| Engineering            | Non   | Cleaning butanol, oils, fluids, sealants, silicosis, torn mercury smart objects, battery cells   | Non  | Packaging, construction or demolition waste, wood, metal   |
| Food                   | Non   | Food fragments; material, brass, and mason jars; labeling  | Non  | Non  |

### Disposal Method

Incineration: Medical and dangerous waste of time recycling plant is an device well matched for smoldering injector, traditional waste, dressings, absorbent tencel or other Medical waste materials. It has big smoldering efficiency kitchen, significant extent of pollution abatement. It is an optimal choice for sewage treatment of Hospital, and many other Industries. The waste of time incineration plant has computer numerical control (cnc for prime efficiency with patent pending spotlights. The facilities has

sophisticated pluses with compactness, greater scorching efficiency, automatic-control, plausible smoldering tech. It is an optimal choice for sewage disposal of hospital, resorts, various bases and industries. The style of recycling plant for this is planned for treatment and disposal, like used nitrile gloves, desert cloth, cassette, poor in quality, disposable surgical facilities, post-operative waste of time, ended treatments, so on. And it has many perks, like simple to operate, smokable and substance, cell phone and foldable.

## CONCLUSION

The business routine may entail a tall robe in coping with the regulatory standards for trash collection at the doctor's office. In this visitors I found out that Our Lady of Lourdes yield very little waste of time each per bed. In result treatment and disposal in our Lady of Lourdes doctor's office included significant levels of waste poised for torching. Our Lady of Lourdes health center are answerable for more than the half of the number waste in Ihiala. Perilous generated waste in maternity ward and the sense it's not really properly regulated, offers a contest to the environment protection elements and public health. As that kind of, there has been still want it to and are handled correctly for a secure way. Waste reduction through waste minimisation, reutilization, and composting must be fully implemented and motivated that allows you to lessen the quantity of hazardous waste created and discharged. Police of various functions exposure to harmful waste management in health centre must be incentivised, and meaningful consequences must be exerted. Parenthood of advanced technologies and inclusive system for efficient and productive handling of chemicals waste is highly advised. Enactment of stringent regulations for businesses and leadership non-compliance to required standard and multilateral treaties is encouraged. Formation of biohazardous material rehabs and replacements of dangerous goods with far less corrosive or non-toxic bits too is strongly advised. However, hazardous materials apartheid technics should have been researched for a preservation. It is extremely important that everything that stockholders ranging from political elites, reits, commodity showrunners, turbines and managers of hazardous play a crucial part in trying to ensure that all such metals are controlled sustainable and responsible. They should really be overlooked or precluded, where essential, mitigated, captured, and treated appropriately and discharged utilising change management.

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