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IMPACT OF BIOMEDICAL WASTE ON ENVIRONMENT

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Biomedical waste is described as any waste generated during a diagnostic procedure, the treatment of a condition or illness, or human or animal vaccinations. It also involves any research activities or methods that entail biological testing. In essence, any waste contains any form of substance that is potentially infectious[1].

Examples of Biomedical waste – Discarded blood, unwanted microbiological cultures and stocks, identifiable body parts, other human or animal tissue, used bandages and dressings, discarded gloves, waste sharps include potentially contaminated used (and unused discarded) needles, scalpels, and other devices capable of penetrating skin[2].

Types of Biomedical Waste

- Infectious[3]
- Pathological[3]
- Radioactive[3]
- Sharps[3]
- Pharmaceuticals[3]
- Genotoxic[3]
- Chemical[3]
- Non-hazardous[3]

Effects of Biomedical Waste in Environment

In Bangladesh, runoff from untreated infectious wastes or human excrement thrown on land can pollute the surface and groundwater, exposing people to sickness and parasites. Uncontrolled medical waste combustion pollutes the air with acid gases, dioxins, furans, and heavy metals[4].

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In Bangladesh, caregivers and family members discard old needles, syringes, and other objects in public areas. A proper waste management strategy is required to protect the safety of both people and the environment[4]. Environmental dangers coupled with inappropriate healthcare waste management can contaminate the air we breathe through harmful airborne particles if not adequately confined, separated, and burnt by on-site or off-site combustion. All medical waste products must be separated at the point of creation, suitably handled, and disposed of properly[1].

Biomedical Waste Problem Solution

Bangladesh's medical waste creation rate is estimated to be 0.8 to 1.67 kg/bed/day, resulting in an annual medical waste creation rate of 93,075 tons[4]. According to the World Health Organization's (WHO) policy statement, inappropriate medical waste disposal (mainly the usage of contaminated hypodermic needles and syringes) caused the following diseases globally in 2000[5]:

- **Hepatitis B**: 21 million infections.
- **Hepatitis** C: 2 million infections.
- **HIV**: 260,000 infections.

The data above demonstrates the critical importance of biomedical waste treatment. The following are some strategies for disposing of biomedical waste[3] –

- Vitrification
- Autoclaves
- Incineration
- Irradiation
- Microwave
- Disinfection

By properly following these methods, we can surely save our environment from the cataclysmic effect of Biomedical Waste.

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