



Examining Waste Management Practices and their Role in Disease Prevention

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Description

Waste management plays a vital role in maintaining public health by reducing the spread of diseases. As the global population grows, the production of waste increases exponentially, making effective waste management essential to safeguard human health. Poor waste disposal practices can lead to the spread of infectious diseases, contamination of water and soil and exposure to harmful chemicals. In contrast, efficient waste management systems help prevent spread of the disease and promote a cleaner, healthier environment. Municipal Solid Waste (MSW) includes everyday items such as packaging, food scraps and paper.

Improper disposal of MSW can attract pests like rodents and flies, which are vectors for diseases such as leptospirosis and *salmonella*. Industrial by-products, chemicals and medical waste fall under this category. Improper handling can result in the release of toxic substances into the environment, causing respiratory illnesses, cancers and skin disorders. Medical wastes are generated by healthcare facilities, this waste includes items such as syringes, bandages and pharmaceuticals. If not disposed of properly, it can spread blood-borne diseases like Human Immuno Virus (HIV), hepatitis and other pathogens.

Discarded electronic devices contain harmful chemicals such as lead and mercury. Exposure to these substances can cause neurological damage and developmental disorders, particularly in children. Various waste management practices are employed worldwide to reduce health risks. These practices involve a combination of disposal techniques, recycling and waste-to-energy solutions, all aimed at minimizing the impact of waste on human health. The first step in any effective waste management system is the proper segregation and collection of waste.

When waste is not separated at the source, hazardous materials can contaminate recyclable or biodegradable waste, increasing the potential for disease transmission. Inadequate collection systems, especially in developing countries, often lead to open dumping and

burning, which emit toxic fumes and develop breeding grounds for disease-carrying insects. By implementing efficient waste collection systems, municipalities can ensure that waste is properly sorted and transported to designated facilities, reducing the chances of contamination and the spread of diseases. Landfilling is one of the oldest and most common methods of waste disposal. However, poorly managed landfills can become breeding grounds for pests and pathogens. Contaminated runoff from landfills, known as leachate can seep into nearby water sources causing waterborne diseases like cholera and dysentery.

This method is commonly used for hazardous and medical waste, as it effectively destroys infectious agents. However, improper incineration can release harmful pollutants, such as dioxins and furans which are associated with cancer, reproductive issues and developmental problems. To ensure that incineration remains a safe method of waste disposal, modern facilities use advanced filtration systems to capture harmful emissions and prevent them from being released into the atmosphere. Strict regulations also govern the temperature and duration of waste combustion, ensuring complete destruction of hazardous substances.

Recycling and composting are sustainable waste management practices that reduce the amount of waste sent to landfills and incinerators, thus decreasing the health risks associated with these methods. Recycling helps recover valuable materials from waste, reducing the need for raw material extraction, which can also be harmful to health. Governments play a pivotal role in establishing and enforcing waste management practices that protect public health. Policies and regulations such as the basel convention, regulate the transboundary movement of hazardous waste and promote the safe disposal of dangerous materials.

In many countries, governments have implemented strict guidelines for waste segregation, collection and disposal, as well as penalties for improper waste handling. For example, the European Union has implemented the Waste Framework Directive (WFD), which prioritizes waste prevention and recycling. This directive sets clear targets for recycling rates and landfill reductions, encouraging member states to adopt more sustainable waste management practices.

Conclusion

Waste management practices are important to disease prevention and maintaining public health. Improper waste disposal can lead to the spread of infectious diseases, contamination of natural resources and exposure to toxic chemicals. However, by implementing efficient waste management systems, including waste segregation, recycling, composting and waste-to-energy solutions, these risks can be minimized. Governments, communities and individuals must work together to ensure proper waste disposal and management, recognizing the direct link between a cleaner environment and better public health. As the world faces increasing waste generation, adopting sustainable and responsible waste management practices is essential for preventing diseases and promoting long-term well-being.

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