



Solid waste management and health

Dr. P. P. Doke

M.D., D.N.B., Ph.D., FIPHA

Professor, Department of Community Medicine,
Bharati Vidyapeeth Medical College, Pune



Types of waste

- Less hazardous waste: refuse, garbage, sludge, municipal trash.
- Hazardous waste: solvents acid, heavy metals, pesticides, and chemical sludges
- Radioactive: high and low-level radioactive waste
- Mixed waste: Radioactive organic liquids, radio active heavy metals



Groups at risks due to solid waste

The groups at risk from the unscientific waste disposal include:

- Populations living close to waste dumpsite
- Children
- Waste workers
- Animals
- Populations in areas where there is no proper waste treatment method



SOURCES OF HUMAN EXPOSURES

Exposures occurs through

- Ingestion of contaminated water or food
- Skin contact
- Contact with disease vectors
- Inhalation



Risk

- Residing near dumpsite
- Exposure unintentional
- Increased risk intentional exposure
 1. Handling for disposal
 2. Handling for burning
 3. Handling for income generating by selling for reuse or recycling



Classification

- Immediate effects
- Delayed effects



Immediate

Mostly due to chemical

- Irritation: nose, eyes and skin (eczema)
- Headache
- Nausea, vomiting
- Fatigue
- Breathing problems (asthma attack)
- Insect bites
- Itching



Delayed

Infectious diseases:

- Due to viruses, bacteria, fungi

Non infectious:

Mostly due to toxic substances like burning of plastic



Infectious/communicable

- Skin Disorders – fungal infection,
- Respiratory Abnormalities – bacterial upper respiratory tract infections (pharyngitis, laryngitis and rhinitis), chronic bronchitis
- Abdominal and Intestinal Problems- bacterial enteritis, helminthiasis, amoebiasis



Infectious/communicable

- Dengue, Malaria and filaria due to rain water collection in sundry plastic articles
- Chicken pox
- Septic wounds

Multiplier effect



Non-infectious/non-communicable

- Allergic dermatitis, pruritus
- Asthma
- Renal failure
- Cancer
 1. Skin cancer
 2. Lung cancer
 3. Liver cancer,
 4. Kidney cancer



System wise

- Ear Infections – otitis media and bacterial infections
- Skeletal Muscular Systems – back pain
- Central Nervous System – impairment of neurological development, peripheral nerve damage and headaches
- Eye Infections – allergic conjunctivitis, bacterial eye infections
- Dental Disorders – dental carries and dental pain



System wise

- Blood Disorders – Iron deficiency anemia (lead content)
- Gastro-intestinal: worm infestation, Diarrhea including cholera
- Respiratory
 1. Asthma
 2. Chemical poisoning due to inhalation
- Cardiovascular diseases; chest pain
- Systemic malaria, chicken pox,



System wise

- Reproductive system
 - Low birth weight
 - Congenital malformations
 - Reproductive disorders
- Neurological disease



Indirectly

- Uncollected waste can obstruct the storm water runoff resulting in flood/stagnation of water
- Leptospirosis



Other documented impacts of solid waste on health

- Increase in hospitalization of diabetic residents living near hazard waste sites
- Mercury toxicity from eating fish with high levels of mercury

***High magnitude due to improper management
Ignorance
No protective measures***

A photograph of a sunset. The sun is a bright yellow-orange circle, partially obscured by the dark silhouette of a tree on the right side of the frame. The sky transitions from a deep red at the top to a dark blue at the bottom. The foreground is dark and blurry, suggesting a field or forest. The text "Thank you" is written in a bold, yellow, sans-serif font, tilted upwards from left to right, positioned in the lower-left quadrant of the image.

Thank you