Wastewater from health-care establishments

May contain

- Microbiological pathogens
  - Bacteria
  - Viruses
  - Helminths
- Hazardous chemicals
- Pharmaceuticals
- Radioactive isotopes
Wastewater discharge to municipal sewer

Hospitals may use a sewer providing:

- The sewer is connected to a plant removing 95% of bacteria
- Sludge is anaerobically digested to a standard of <one helminth egg per litre
- High standards of HCW management and low discharge of hazardous chemicals
- Waste from patients treated with cytotoxic drugs is collected separately
On-site treatment of wastewater

- **Primary treatment**
- **Secondary biological purification**
  - 90% to 95% of bacteria removed
  - Most helminths removed
- **Tertiary treatment**
  - Lagooning or sand filter
  - <10 mg/l suspended organic matter
- **Chlorine disinfection**
  - Especially important if effluent discharged in a coastal area
On-site sludge treatment

Options

- Anaerobic digestion
- Natural drying in beds, and incineration

Guidelines for safe land spreading without disinfection

- <one helminth egg per kilogram
- <1000 faecal coliform per 100 grammes
On-site minimal safety requirements

Lagooning
• Two lagoons (minimum) followed by soil filtration

If no sewage treatment:
• Isolate enteric patients and disinfect excreta
• No discharge of chemicals and pharmaceuticals to the sewer
• Deshydrate sludges from hospital cesspools and disinfect chemically
• NEVER use hospital sewage for agriculture
• Don’t discharge to natural waters
• Small rural establishments: infiltrate through porous soil
Sanitation in health-care establishments

Hospital sanitation is of primary importance to avoid the continuous recirculation of diseases in the community