



# WHO's Blue Book- an update



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Health Care Without Harm

# “Safe management of wastes from health care activities”



- Originally published in 1999
- Agreed to update in 1997
- Contributions from experts from around the world
- Editing process started- N.B. new material still being incorporated
- Check back with authors on changes
- Peer review
- Publication early 2010

# Major changes



- Many chapters rewritten, some merged, moved and “future issues” added
- Basic chapter structure
  - Key questions to answer
  - Main discussion
  - Minimal approach
  - Key points to remember
  - References and further reading

# Introduction, definitions, hazards

- Introduction
- Definition and classification
  - Infectious and sharps, pathological waste, pharmaceuticals including cytotoxic wastes, chemical waste, radioactive waste, non-hazardous general waste
  - Sources, physicochemical characteristics
- Environmental and occupational health risks
  - Types of hazards, persons at risk, hazards of each type of waste
  - Hazards from waste treatment methods, public sensitivity
  - Public health impact of health care waste, impact of each type of waste
  - Survival of pathogenic microorganisms in the environment
  - Needs for further research and epidemiology

# Legislation, regulations and policy

- Guiding principles
  - Polluter pays; Precautionary Principle; Duty of care, Proximity principle, Prior informed Consent
- Basel Convention (Int'l transport of hazardous wastes)
  - Wastes from hospitals, expired drugs, infectious wastes
  - Export from OECD, EU to Lichtenstein to other countries banned (also now part of EU law)
  - Mercury decision- measures to reduce mercury use and pollution
- Bamako- bans importation of medical wastes to Africa
- Stockholm Convention (POPs Convention)
  - Aims to reduce persistent organic pollutants inc dioxins
  - Priority to non-incineration techniques eg autoclave
- Classification and Labelling of Chemicals,
  - UN model regulations
- UNECE European Agreement concerning the International Carriage of Dangerous Goods by Road (ADR)
- Aarhus Convention: Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters )



# WHO policy

- **Short-term**

- More recycling, PVC-free medical devices, alternatives to small-scale incineration for low-income countries

- **Medium-term**

- Reduce unnecessary injections, research into hazards of dioxin, incineration, exposure to healthcare waste

- **Long-term**

- Scale up non-incineration technologies for the final disposal of HCW
- Support countries developing and implementing national plan, policies and legislation on health care waste;
- Promotion of the principles of environmentally sound management of HCW as set out in the Basel Convention
- Improve allocation of human and financial resources

# Planning, occupational health & safety, infection control

- Planning

- International recommendations, national plans
- Plans for healthcare establishments
- Scattered sources- dentists to funeral parlours to immunisation campaigns.

- Occupational Health and Safety

- Principles, occupational health risks, cytotoxics, exposure prevention and control, bloodborne pathogens, spillages, accident reports, PPE and PEP, education

- Hospital Infection Control

- Chain of infection, epidemiology of nosocomial infections, from exposure to infection, routes of transmission
- Principles of preventing nosocomial infection: isolation and standard precautions, cleaning, sterilisation and hand hygiene

# Waste minimisation reuse and recycling

## Segregation storage and transport

- Waste minimisation reuse and recycling
  - Best practice, waste minimisation, safe reuse, recycling and recovery, disposal, environment management systems
- Segregation storage and transport
  - Segregation systems, labelling, receptacle specification and siting,
  - Collection and storage within the facility, general requirements, hazardous wastes, layout, documentation
  - Onsite transport: general requirements, transport trolleys, routing
  - External transport: UN regulations, classification, packaging, logistics, vehicles, routing, cleaning of container and vehicle, transport documentation

# Treatment and disposal methods

- Infectious waste treatment technologies
  - Steam treatment technologies
    - Autoclaves, integrated steam treatment systems, microwave systems
  - Dry heat treatment systems
  - Chemical treatment systems
  - Incineration
    - Types of incinerators, environmental controls
  - Inertisation, Encapsulation
- Other waste categories
  - Sharps
  - Pathological waste
  - pharmaceutical waste including cytotoxic waste
  - Chemical waste, waste with heavy metals
  - Radioactive waste
  - Emerging technologies: promession, alkaline hydrolysis etc
- Land disposal
  - Municipal sites, safe burial on hospital premises



# Management of liquid wastes

- Hazards from wastewaters
  - Wastewater related diseases, toxic liquids, pharmaceuticals, radioactive substances
- Characteristics of healthcare wastewater
  - Quantity, quality, variation by hospital department
- Collection and pretreatment
  - Sewer systems for healthcare facilities, discharge into municipal systems
- Onsite treatment
  - Wastewater treatment systems, disinfection of wastewater, disposal of sludge
- Emerging technologies
  - Reuse of wastewater and sludge
- Operation and maintenance of sewage systems
- Monitoring wastewater systems

# Economics, Education and training

- Economics

- Draft to be circulated

- Education and training

- Employees to be trained, content of programme, follow-up and refresher courses, training responsibility
- Implementing a training course
  - The training package, selection of participants
- Training for different cadres of staff
  - Healthcare personnel
  - Cleaning staff
  - Staff who transport waste
  - Treatment plant operators
  - Landfill operators



# Emergencies, Future issues

- Emergencies

- Rapid initial assessment
- Emergency response
- Recovery phase
- Contingency planning and emergency preparedness

- Future issues

- Changing patterns of disease
  - Emerging diseases and multiply drug resistant pathogens, pandemics
- Environmental issues
  - Climate change, other environmental issues
- Technological issues
- Social, cultural and regulatory changes



# Summary and conclusions

- Basic text for all levels of the industry
- Advice for low, medium and high income countries
- Benchmarks
- Links to many more detailed resources
- Most significant changes in policy and technologies