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WELL AT HOME. SAFE AT WORK.

927 Safety Principles for Health Care

Ben Hissam

9:00 a.m. – 4:00 p.m. Tuesday, March 27

Ohio | Bureau of Workers' Compensation

Continuing Nursing Education Disclosures

- **Goal:** To educate conference attendees on specific aspects of accident prevention and Ohio's workers' compensation system
- **Learning objectives for session # 927 Safety Principles for Health Care**
  - Identify OSHA and Environmental Protection Agency regulations
  - List safety standards for medical providers, bloodborne pathogens, medical waste handling and disposal
  - Describe the basics of ergonomics and injury prevention programs
- **Criteria for Successful Completion:** Attend the entire event and complete a session evaluation.
- **Conflict of Interest:** The planners and faculty have no conflict of interest.
- **Commercial Support:** There is no commercial support for this event.
- **Continuing Education:** Awarded 0.1 IACET general CEUs and 1.0 RN* contact hour.

**The Ohio BWC (OH-188/01-01-2013) is an approved provider of continuing nursing education by the Ohio Nurses Association (OBN-001-91), an accredited approver by the American Nurses Credentialing Center's Commission on Accreditation.*

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Safety Programs Standards

- Hazard communication or lab standard
- Emergency action plans
- Bloodborne pathogens
- Chemotherapy and formaldehyde
- Radiation safety
- Laser safety
- Others (ergonomics)

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Chemical Safety

- Hazard communication
- Laboratory standard

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Hazard Communication

Your right to know!

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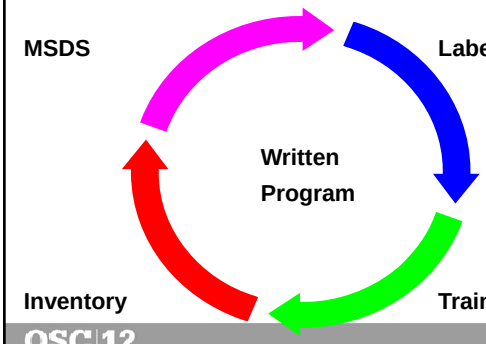
Requirements of the Standard



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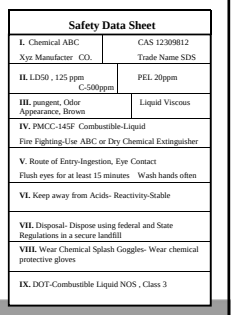
Safety Data Sheet Requirements

- Supplied by manufacturer/distributor
- Have on hand for each hazardous chemical
- Must be accessible to affected employees
- Chemical manufacturer
- Trade secrets
- Must communicate what hazardous
- Constituents are in the chemical

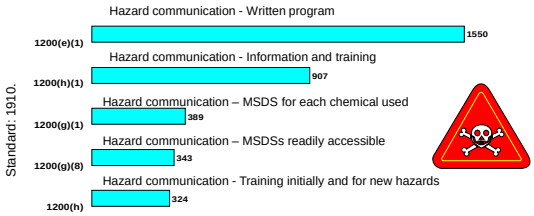
Main Sections of an SDS

- I. Chemical identity
- II. Health data
- III. Physical data
- IV. Fire and explosion data
- V. Health hazard data
- VI. Reactivity
- VII. Environmental data
- VIII. Special protection
- IX. Special precautions



Safety Data Sheet	
I. Chemical ABC Xyz Manufacter CO.	CAS 1230ϑ812 Trade Name SDS
II. LD50 , 125 ppm C-500ppm	PEL 20ppm
III. pungent, Odor Appearance, Brown	Liquid Viscous
IV. PMCC-145F Combustible-Liquid Fire Fighting-Use ABC or Dry Chemical Extinguisher	
V. Route of Entry-Ingestion, Eye Contact Flush eyes for at least 15 minutes Wash hands often	
VI. Keep away from Acids- Reactivity-Stable	
VII. Disposal- Dispose using federal and State Regulations in a secure landfill	
VIII. Wear Chemical Splash Goggles- Wear chemical protective gloves	
IX. DOT-Combustible Liquid NOS , Class 3	

Subpart Z - Toxic & Hazardous Substances (1910.1000 - 1450)



OSHA Laboratory Standard 29 CFR 1910.1450

- Hazardous chemicals in laboratories
- Purpose is to protect workers that use chemicals in a laboratory environment
- Smaller amounts/Greater quantities
- Chemical hygiene plan

Laboratory Standard Chemical Hygiene Plan

- Has the same components as a hazard communication but focus emphasis on smaller amounts but greater quantities of hazards
- Chemical hygiene officer
- Inventory all hazardous chemicals
- Label program/original and secondary containers
- Storage of hazard classes

Laboratory Standard Chemical Hygiene Plan

- Training for employees on hazards present
- Safe usage ventilation hoods
- No pipetteing by mouth
- Prevention of dangerous chemical reactions

Specialized Chemicals

- Formaldehyde
  - OSHA formaldehyde standard (29 CFR1910.1048)
  - PEL 0.75 ppm STEL 2 ppm
- Health-care professionals and medical lab ,mortuary workers as well as teachers and students who handle biological specimens preserved with formaldehyde or formalin
- Routes of entry: Inhalation – skin absorption - ingestion

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Specialized Chemicals

- Chemotherapy drugs
- Individuals who have received treatment within 48 hours could expose others.
- Body fluids (blood urine, feces)
- Health-care professionals, medical staff, individuals who clean could come in contact with the drugs
- Use spill clean up kits and protective measures.

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Labeling for Chemicals

- Manufacturer label information
- Label must have hazard information.
- If information is defaced, a secondary label must be attached.

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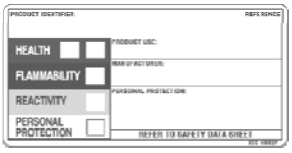
Labeling Secondary Containers

- All secondary containers must be labeled with the proper information.

Chemical name
Health
Flammability
Reactivity
Personal protective equipment
Target organ if applicable
Signal word (GHS)



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What's Next?

Global Harmonization System

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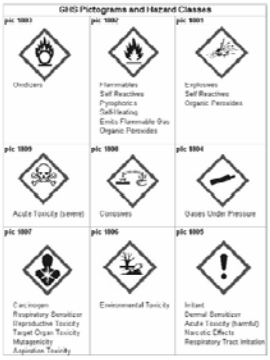
GHS pictograms

hazard classes

classifications



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Emergency Action Plan

- **Employer must assess what types of emergencies could occur?**
- Fire
- Severe weather
- Medical
- Chemical
- Bomb threat
- Workplace violence
- Power outage

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Workplace Emergency

- An unforeseen situation that threatens your employees, customers, or the public, disrupts or shuts down your operations, or causes physical or environmental damage

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Hazard Assessment Models

- Types of emergencies
  - Natural
  - Environmental
  - Human engineering
  - Technical
- What types of emergencies can occur in your location?

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Fire Emergencies

- Evacuation of building occupants
- Accountability
- Less than 10 employees verbal only
- Illuminated exits signs
- Have multiple evacuation routes
- Primary and secondary egress
- Map evacuation routes (signage) best practice

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Egress Pathway

- Ensure egress routes are not blocked.

Ensure emergency backup lighting is working.

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Communication

- How do you communicate with your personnel when emergency occurs?
- How can employees differentiate what type of an emergency when it occurs?
- Fire – Severe weather
- Evacuation or shelter in place

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Other Types of Emergencies

- o Work place violence
- o Chemical or hazmat releases
- o Bomb threats

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Workplace Violence

- o Stranger
- o Domestic
- o Worker

Boundary control measures (fences, security cameras)

Control of all entry points within the facility

No overgrown shrubbery or landscape near exits or windows

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Chemical Accidents

- o Why worry about this type of emergency?
  - Most of the businesses involved in these types of emergencies are neighboring
  - Fixed facility
  - Transportation
- o What is Shelter in place ?
- o Chemical spills within the office or business

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Emergency Eye Wash

- o When corrosive chemicals are present, the employer is required to have a emergency eye wash station.
- o ANSI compliant for flow rates
- o If possible, the water must be tempered.

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Chemical Spill Kits

- o Spill kits are used to absorb small amounts of hazardous chemical spills.
- o Kits contain spill media.
- o Absorbent
- o Disposable containers
- o Protective equipment

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Bomb Threats

- o Have a simple check list located at the main office phone.
- o Notify other employees of the threat.
- o Be able to gather pertinent information to determine if credible.
- o Take action if credible.

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Blood Borne Pathogens

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OSHA BBP Standard CFR.29 1910.1030

- **Reason:** Concern for employees who are occupationally exposed to blood and other body fluids and could acquire certain disease through exposure
- **Purpose:** To minimize risk for employees with occupational exposure to blood and body fluids
- **Requires:** Development of a exposure control plan

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Training Requirements

- Annual training
- Definition BBP
- What diseases are associated with
- Universal precautions
- Control measures
- Cleanup and decontamination
- Prevention/Vaccination

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Written Exposure Control Plan

- Addresses what jobs have potential for exposure
  - (Janitorial , medical office staff and first responders)
- Control measures to use:
  - Universal precautions;
  - Personal Protective Equipment (PPE);
  - Engineering controls.
- Clean-up and disposal procedures
  - Decontamination
- Hep B vaccination policy for employees
- Post exposure requirements

Exposure Control

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Methods of Transmission

- Needle sticks or puncture
- Injections, veinipuncture, (IV) intravenous
- Invasive surgical or dental procedures
- Handling/cleaning contaminated surfaces or equipment

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Diseases Associated

- Hepatitis B and C
- HIV (Human Immunodeficiency Virus)
- Other diseases transmitted through blood are:
- West Nile;
- Ebola;
- Malaria.

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Hepatitis B

- This is the most easily transferable due to virulence of the microorganisim
- Can live on dried blood up to 30 days
- Chronic exposure
- Symptoms can include:
  - Jaundice, liver failure;
  - Liver enlargement, lifetime exposure;
  - Most preventable disease.
- Vaccination available since 1982

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Hepatitis C

- Disease usually transmitted through either blood transfusions or organ transplants.
- Exposure is from another person who is already Infected with Hepatitis C.
- Needle sharing is one of the common ways to infect someone.
- There is no known cure.

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Human Immunodeficiency Virus

- HIV is the virus that leads to AIDS.
- HIV depletes the immune system.
- HIV does not survive well outside the body (host to host transmission).
- Victims can be asymptomatic for many years.
- No threat on contracting HIV through casual contact.

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Prevention of Bloodborne Diseases

- Body Substance Isolation
- Engineering Controls
- Safe Work Practices
- Use Personal Hygiene
- Universal Precautions

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Engineering controls

- Sharps containers
  - Needles
  - Blades
  - Syringes

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Universal Precautions

- Must be observed in all situations where there is a potential for contact with blood or other potentially infectious materials
- Treat **all** human blood and body fluids as if they are **infectious.**
- Barrier protection
- PPE
- Engineering controls

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Clean up and Decontamination

- Disinfect all contaminated
- Areas
- Equipment
- Clothing
  - Use either an approved disinfectant or1-10 solution of sodium hypochlorite (bleach).
  - Spray the solution and let set for 10 minutes before rinsing.
  - Dispose of all contaminated materials.
  - Decontaminate all clothing.

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Emergency Equipment Inspection Requirements

- Monthly Inspection
- EXIT Emergency Lighting in the event of a power loss
- Portable Fire Extinguishers
- Medical Supplies (first aid kits)
- Eye wash stations

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Portable Fire Extinguishers

- Employees Trained ?
- Annual refresher required
- Limitations
- Definition of an incipient fire

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PPE Program Overview

- Workplace hazard assessment
- Product evaluation/selection
- Employee training
- Care and inspection

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PPE

- PPE
- Selection process
- Knowledge of the hazard
- Limitations of equipment
  - Example: Latex or nitrile

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Electrical Safety

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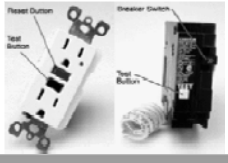
Electrical Safety

- All electrical outlets near sinks should have (GFCI) Ground Fault Circuit Interrupter Protection.
- Electrical panels should have a clearance in all directions of at least 36 inches in all directions.



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Electrical Hazards

- Do not block panel boxes or other electrical equipment.
- Check all electrical wiring for damaged insulation.
- Do not use portable extension cords as permanent wiring.
- Make sure plugs are not damaged ground missing.

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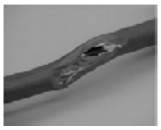
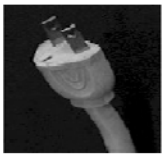
Hazard Recognition





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Radiation Safety

- X-ray machines
- CT scans
- Gamma rays and beta particles
- Sealed sources – equipment
- Labeling – identification
- Detection badges for personnel

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Protective Measures

- Shielding – lead rooms – lead barriers
- Distance – social distance if possible
- Protective equipment – gloves – boot covers
- Universal precautions –
  - Good personal hygiene
  - Disposal practices for RAD materials
- Employees can wear dosimeter badges to monitor exposure (wear at collar height).

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Laser Safety

		MD	RN	Tech	Service	LSO
1)	Laser Physics/Biological Effects	X	X	X	X	X
2)	System Components/Delivery Devices/Instrumentation	X	X	X	X	X
3)	Federal, State, Local Regulations	X	X	X	X	X
4)	ANSI Z136.1, Z136.3 Standards	X	X	X	X	X
5)	Institutional Policy/Procedures	X	X	X	X	X
6)	Hazard Classification				X	X
7)	Access to Laser Key		X			X
7)	Medical Surveillance	X	X			X
9)	Documentation/Incident Reporting	X	X		X	X
10)	Anesthesia Hazards/Controls	X	X	X		X
11)	Personal Protective Equipment	X	X	X	X	X
12)	Patient Protection	X	X	X		X
13)	Operational Skills Workshops	X	X	X	X	X
14)	Procedure for Safety Audits					X

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Classification of Lasers

- o Class 1
- o Class 2
- o Class 3
- o Class 4: High power, fire hazard
- o Identification
- o Protection: PPE – eye wear, barriers or shields

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Slips/Trips/Falls

- o Walking working surfaces

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Applicable OSHA Standards

1. Keep all places of employment clean and orderly and in a sanitary condition. 29 CFR 1910.22(a)(1).
2. Keep floors clean and dry. Where wet processes are used, 29 CFR 1910.22(a)(2).

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Applicable OSHA Standards

3. Keep aisles and passageways clear and in good repair with no obstruction across or in aisles that could create a hazard. 29 CFR 1910.22(b)(1).
4. Keep exits free from obstruction. Access to exits must remain clear of obstructions at all times. 29 CFR 1910.37(a)(3).
5. Provide warning signs for wet floor areas. 29 CFR 1910.145(c)(2).

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Hazard Controls Slips

- o Slip resistant matting
- o Slip resistant shoes (ANSI complinant)
- o Heavier ML trash liners
- o Use proper notification and signs to communicate if floor is wet or slippery.

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Slip Resistant Footwear

ANSI : Approved slip resistant

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Ergonomics

- The science of fitting jobs to people
- Designing jobs so people can do them safely and efficiently
- Minimizing potential for overexertion and cumulative trauma musculoskeletal disorders (MSDs)
- Developing a process for making ongoing improvements

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Risk Factors

- Repetition
- Forceful exertion
- Awkward posture
- Duration/Insufficient recovery time
- Mechanical pressure/Contact stresses
- Vibration
- Environmental stressors

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Worksite Analysis Methods

- Task analysis
- Check lists
- NIOSH lifting guides
- Video taping/Observation
- Symptom surveys

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Repetition

When the body part is:	The repetitiveness is classified as:
Idle most of the time;	Very low;
Frequently pausing, waiting for equipment;	Low;
In steady motion;	Medium;
In rapid motion;	High;
In constant rapid motion, difficult to keep up.	Very high.

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Forceful Exertion

It's the force exerted by the body to perform an action. The higher the force, the greater the potential to develop injuries.

- Categories of applied force
  - LOW 0 to 2 lbs.
  - MEDIUM 2 to10 lbs.
  - HIGH 10 to 30 lbs.

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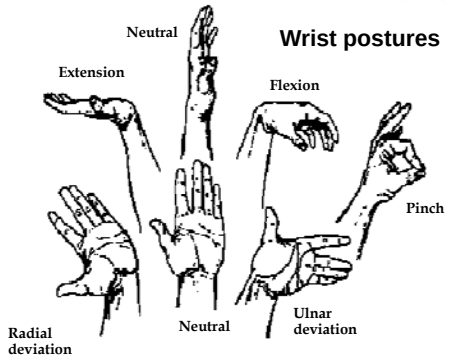

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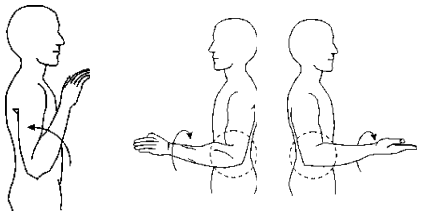
Awkward Postures

- Forearm/Elbow



Flexion Pronation Supination

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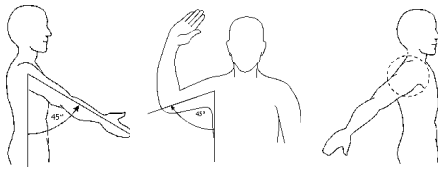
Awkward Postures

- Shoulder



Flexion Abduction Hyperextension

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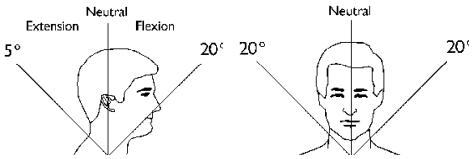
Awkward Postures

- Neck



Extension and flexion Lateral bending

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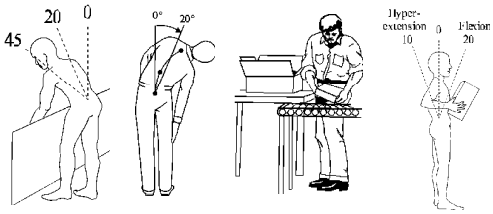
Awkward Postures

- Back



Flexion Lateral bending Twisting Extension and flexion

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Prevention

- Automatic doors
- Adequate space for transfers/equipment in bedrooms, bathrooms, and shower rooms
- Minimal need to negotiate ramps/steps
- Low, sloped thresholds
- Non-slip flooring
- Adequate storage space

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Nursing Department Engineering Controls

- Patient lifters and sit-to-stand lifters
- Drop/Removable arm wheelchairs
- Electric low-beds
- Gait belts with handles
- Pneumatic seat lift
- Transfer boards/disks

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General Considerations for Assistive Equipment Selection

- Resident safety/comfort
- Capacity/Durability
- Size/Accessibility
- Maneuverability
- Ease/Speed of operation
- Versatility
- Maintainability
- Training required
- Cost
- Compatibility with other equipment

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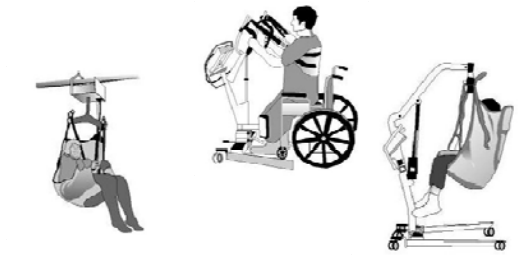
Patient Lift Devices



- http://www.osha.gov/ergonomics/guidelines/nursinghome/final_nh_guidelines.html

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Implementation of a Program

- Develop an implementation team.
- Put together an action plan with a timetable.
- Develop product evaluation criteria and forms.
- Get staff input in evaluation and selection.
- Develop and document policies for use.
- Document training and competency.
- Conduct periodic follow-up assessments.

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Summary and Questions

- Safety programs and compliance
- Region V – Emphasis program on health-care facilities

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Waste Management EPA CFR 40

- Resource Conservation and Recovery Act
- Medical waste
- Hazardous waste
- Universal waste
- Mixed waste

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Solid Waste CFR 40 Protection of the Environment

- It has no further use and is discarded or abandoned.
- Solid waste non- hazardous or municipal solid saste - Subtitle D

Or

- Hazardous waste (CFR 40. 261) – Subtitle C

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Regulated Medical Waste

- Liquid or semi-liquid blood or other potentially infectious material(OPIM)
- Contaminated items that would release blood or OPIM when compressed
- Contaminated sharps
- Pathological and microbiological waste containing blood or OPIM

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Warning Labels Requirements

- Containers of regulated waste
- Refrigerators and freezers containing blood or OPIM
- Other containers used to store, transport, or ship blood or other potentially infectious materials
- (MWTA) Medical waste
- Infectious material liners (red bags)

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Medical Waste Streams

- Sharps
  - Needles, syringes, scalpels, blades
- Non-sharps and infectious waste
- Treated medical waste /Autoclave
- Records of destruction and temperature

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Sharps Containers

- Sharps containers
  - Rigid material
  - Tamper resistant closure
  - Labeled

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Medical Waste Program Overview

- Medical waste storage
  - Designate an area that is secure.
  - Label the door or designated area.
  - Segregate sharps from non-sharps.
  - Red bag all infectious waste (best practice).
  - Label all containers that hold medical waste.

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Medical Waste Tracking Act

- Labeled with bio hazard symbol
- Waste is disposed of by a medical waste approved facility.
- They are autoclaved to destroy all infectious agents.
- Bio hazard bags are usually red and are made of heavy plastic to prevent leakage.

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Generators Requirements Infectious Waste

- **Large quantity generator** 50 lbs. or more of infectious waste per calendar month.
- Send a registration form to OEPA.
- Have an infectious waste spill kit where the waste is stored.
- **Small quantity generator** less than 50 lbs. per calendar month.

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Shipment of Medical Waste

- The generator must fill out a Uniform Medical Waste Manifest.
  - Specific to the generator
  - Generator information
  - Waste stream and weights
  - Transporter information
  - Treatment dite

You must keep and file manifest copies for three years.

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Infectious Waste Disposal

- You may dispose of some liquid infectious waste such as blood or OPIM by the sanitary sewer if the treatment plant can handle those types of waste.
- Check with the local treatment or public works department to ensure compliance.
- **Infectious Waste Unit: 614-644-2621**
- PO Box 1049
- Columbus, OH 43216

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Hazardous Waste Generators

- Large quantity
- Small quantity
- Conditionally exempt (CESQG) 40CFR 261.5
- CESQGs must identify all the hazardous waste generated.
- CESQGs may not accumulate more than 220 lbs of hazardous waste at any time.
- CESQGs must ensure that hazardous waste is delivered to a facility who is authorized to manage it.
- Most small medical facilities fall into this category CESQG.
- Household hazardous waste are exempt.

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Universal Waste CFR 40 273

- Fluorescent light bulbs (FLBs)
- Ballasts
- Some fluorescent light bulbs contain mercury and lead.
- National recycling program for FLB

Have a separate area where you keep discarded FLB.

Ship to recyclers in approved containers, make sure not to break them.

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Mixed Waste

- Mixed waste is defined as a hazardous waste that is also mixed with another type like radioactive materials.
- Laboratory waste can be a mixed waste if not properly managed.
- It's very costly to dispose of because of the radioactive properties.

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Household Hazardous Waste (HHW)

- HHW is exempt from RCRA subtitle C regulations.
- However, these chemicals are usually in smaller quantities used by a consumer,
- This type of waste can still be just as toxic as company who generates hazardous waste,
- Communities have local HHW drop off programs and upcoming collection days. Permanent collection or exchange

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Facts About HHW

- Americans generate 1.6 million tons of HHW per year.
- The average home can accumulate as much as 100 pounds of HHW in the basement and garage and in storage closets.

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Summary Waste Streams

- What is the definition of a small quantity generator of infectious waste?
- If an autoclave is used to treat infectious waste what must the generator do to dispose of it at MSW landfill ?
- Questions

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