DENTAL FACILITIES

SMH Off-Site Locations
The objective of this training is to help identify the chemical and biological hazards present in a dental facility. Actions you can take to minimize these hazards and properly dispose of some of the wastes will also be discussed.
Dental Facility Hazards

Hazards present in Dental Facilities may include:
- Blood/body fluid exposures from sharps
- Exposure to particulate releases
- Exposures to waste anesthetic gases
- Possible exposures to chemical agents
- Slips/trips/fall hazards
- Electrical shocks
Dental Facility Wastes

Wastes of concern in Dental Facilities may include:

- Blood/body contaminated gauzes
- Syringes
- Bite wing wastes
- X-ray developer.fixer wastes
Blood/Body Fluid Exposures

Sharps injuries may occur during use. Injuries from sharps may include:

- Suturing
- Injections (Novacane)
- Cutting (scalpel injuries)
- Inserting peripheral I.V. line
Blood/Body Fluid Exposures

Sharps injuries occurring after use. These injuries may include:

- Withdrawing needle from patient
- During clean up and disassembly
- During disposal
  - Overfilled sharps container, protruding needles
- Stuck by needle left in trash & on floor
- Patient movement jars device
Blood/Body Fluid Exposures

What can you do?

- Utilize safe zone during dental procedure
  - Do not hand pass needles/syringes
- Account for all sharps used
- Dispose of sharp in sharps container immediately after use
- Always wear eye/face protection
- Place blood-soaked gauge in red bag for disposal
Blood/Body Fluid Exposures

Using personal protective equipment (PPE) helps reduce possible exposures.

Although you use gloves & a mask, consider wearing a combination visor-mask to prevent eye exposures.
Blood/Body Fluid Exposures

Should an exposure occur:

- Eye/face exposures: Use an eyewash station, rinse for 15 minutes
- Needlestick: Express blood from stick, wash with soap/water or use betadyne
- Report exposures immediately to University Health Service at 585-275-1164
Particulate Releases

Some procedures generate particulates into the air (i.e., drilling, cauterizing)

These particulates can have viable organisms present that can cause an infection

Preventive actions:
- Use suction close to point of generation
- Wear N95 respirator (medical clearance and fit testing is required)
- Wear tight fitting safety goggles
Nitrous Oxide (N₂O)

N₂O is a weak anesthetic with rapid onset and rapid emergence (disappears from body 17-35 minutes after being discontinued)

It decreases blood pressure, pulse rate & respiration

N₂O acts solely on cerebral cortex, causing mild depression, slowing of reflexes, and diminished small motor skills

N₂O dissolves in the blood. It is eliminated unchanged from body via exhalation
Nitrous Oxide (N$_2$O)

- Exposures to trace concentration decreases ability to perform complex tasks.
- Habitual use linked to peripheral nervous system damage.
Nitrous Oxide (N$_2$O)

- Epidemiological studies identify N$_2$O as a suspected reproductive health hazard.
- Females working with this agent showed increased incident of spontaneous abortions.
- Decreased probability of conception for elevated exposures (California study).
Nitrous Oxide (N$_2$O)

- Impact of N$_2$O alone on liver & kidneys is not known because the agent is often administered with a halogenated anesthetic agent.
- Increased incidents of liver disease is associated with mixed anesthetic agents.
- Kidney disease is less strongly associated with anesthetic exposure.
Nitrous Oxide (N₂O)

To reduce possible exposure to nitrous oxide:

- Check for leaks and proper operation of equipment
  - Collection device (mask) must fit tightly and not collapse when used
  - Maintain negative pressure suction in closed/recirculated breathing circuit
  - Check gas-tight connections (tubing, breathing bag, etc.)
  - Maintain high ventilation in the room (15-25 air changes/hr) and the room needs to be on a non-recirculating air system
Nitrous Oxide (N$_2$O)

To reduce possible exposure to nitrous oxide:

- Establish good workplace practices.
  - Adjust scavenger system exhaust rate to 45 lpm
  - Select nasal mask for good fit.
  - Determine if patient is good candidate for use. Patient must:
    - Avoid mouth breathing during surgery
    - Avoid excessive talking
    - Minimize facial movements
  - Turn N$_2$O on only after nasal mask secured to patient.
  - Flushing anesthesia unit and scavenging system with O$_2$ following N$_2$O delivery.
Cleaning Agents

A number of cleaning agents are used for equipment and the room.

Those using the cleaning agents have the greatest potential of exposure. Before use:

- Obtain instruction from your supervisor on use
- Read the product label and the MSDS
- Use the product as it is intended. Do not mix with other cleaning agents!
- Use the required PPE for use
Chemicals of Concern

Mercury

- Inhalation of mercury vapors can cause neurological problems. Special disposal requirements exist.
  - If a capsule of mercury-silver breaks in the storage bottle, remove the spilled material in a well ventilated area for disposal as hazardous waste.
  - Keep amalgam bottle closed except when needed.
  - Clean up any spills immediately.
  - Save unneeded mercury containing materials, including material collected in spit-sink, in a waste bottle for disposal as hazardous waste.
Chemicals of Concern

Lead

- Use to cover bite-wings X-rays
- DO NOT DISPOSE OF LEAD IN TRASH. Collect lead in a collection box for disposal as hazardous waste. Contact the UofR’s Hazardous Waste Management Group for details (phone 585-275-2056)
Chemicals of Concern

- X-ray development chemicals
  - Many communities require a silver recovery system for x-ray developers.
  - A special system can be installed at your location.
  - Contact the UofR’s Hazardous Waste Management Group for details (phone 585-275-2056)
Chemicals of Concern

Formocresol

- This mixture is used to kill the pulp in a tooth during a root canal
- This chemical is a mixture of formaldehyde and cresol
  - Formaldehyde is a carcinogen. Limit exposures to help prevent possible adverse health effects.
- Always handles material in a well ventilated room
- Wear PPE (gloves and safety glasses)
- Clean up spills immediately
Chemicals of Concern

Methacrylate Compounds

- These compounds are used in the manufacture of dentures and composite fillings
- Use only that quantity needed for the application
- This material is flammable and irritating to the skin and respiratory track
- Always handle material in a well ventilated room
- Wear PPE (gloves and safety glasses)
- Repeated skin exposures may cause tingling or prickling sensation of the skin
- Clean up spills immediately
Slips/Trips/Falls

- The walking surface of dental locations can be slippery, causing an injury
- Take the appropriate precautions
  - Wear slip resistant foot wear
  - Report water/fluids on floor for clean up
  - If the floor is wet, use a “CAUTION – WET FLOOR” sign
Head Injuries

Dental lights are adjustable. These lights might be positioned in a location that may result in a head injury.

Use these simple rules:
- Keep light up, out of the way until needed
- Once done using, move the light up, out of the way
Electrical Shocks

- Medical locations are constructed to a high standard to minimize electrical shocks hazards.
- Faulty equipment is the cause of most shocks.
- Take the following actions to prevent shocks:
  - Unplug power cords holding the plug, never pull the cord.
  - Never operate equipment if the ground plug is missing. Take out of service for repairs.
  - If the plug becomes separated from the wire, take the equipment out of service for repair.