Collection, Treatment, and Landfill/Incinerator Disposal of Medical Waste
Southern CA Waste Management Forum – November 04, 2009
Overview

We will cover:

• What is Medical Waste according to CA Department of Public Health?
• What are the state regulations?
• What are the operations at off site facilities?
• Where is the waste going?
• What are the new incinerator regulations?
• What are the technology options?
What is Medical Waste according to CDPH?

• Defined under the Medical Waste Management Act – CA Health and Safety Code 117600-118360
  • 117635 – Biohazardous Waste
    • Lab waste including human animal specimen; cultures and stocks; production of lab environment
    • Surgery or gross tissue specimens
    • Animal parts
    • Recognizable fluid, blood, products
    • Discarded excretion, exudates or secretions from humans or animals
    • Chemotherapy and trace products
    • Pharmaceuticals that meet certain criteria of being CA only hazardous
Definitions (continued)

• 117690 – Medical Waste
  • Biohazardous waste and sharps waste
  • Trauma scene waste
  • Home generated sharps waste

• 117747 – Pharmaceutical
  • Prescription or over the counter human or veterinary drug
  • Does not include anything that is a RCRA hazardous waste or radioactive
What is Medical Waste according to CDPH?

Definitions (continued)

• **117755 – Sharps Waste**
  • Anything that is capable of cutting or piercing including:
  • Hypodermic needles, needles w/syringes, blades, attached syringes, syringes with biohazardous waste, acupuncture, root canal files
  • Broken glass contaminated with biohazards
  • Anything contaminated trauma scene waste that can cut or pierce.

• **117780 – Treatment**
  • Method, technique or process designed to change the biological character or composition of any medical waste so as to eliminate its potential for causing disease as specified in Chapter 8
What are the state regulations?

• Registration required
  • All LQGs must register with the state
  • SQGs that treat on site must register with the state
  • Medical Waste Haulers must register
  • Medical Waste Treatment facility must be permitted

• Options to treat on site
  • SQG and LQG must register
  • Must be in the same building or adjacent
  • Must have waste management plan
  • Must continue to maintain inspection, treatment and tracking records, follow all containment and storage requirement and treatment documentation.
  • Payment of Fees
Transportation of Medical Wastes for off site treatment

- Must have valid hazardous waste transporter registration certificate
- Waste must be transported to a permitted medical waste treatment facility or transfer station or registered generator for consolidation
- Must provide employees all appropriate PPE and other protective equipment
- Transfer of waste through a facility can only occur at a permitted medical waste transfer station
- Tracking records must be maintained; All information must be compliant with Federal DOT regulations

Transfer Station Permits:
- Fee’s charged initially and annually thereafter
What are the state regulations?

Treatment Facility Permits and Requirements

- Must be permitted to accept waste
- Valid for 5 years
- Must maintain treatment operating records
- Subject to fees
- Must follow approved treatment method:
  - Incineration
  - Steam Sterilization
  - Alternative methods approved by the department
  - Sewered if it meets certain criteria and is allowed by the local POTW – Many say NO!
What are the state regulations?

• Facilities are limited to what they can manage based on permit conditions and specific methods identified in the regulations
  Anatomical parts – interment, incineration or approved alternative method approved by the department
  Waste Requiring Specified Methods – Pathological biohazardous waste or chemotherapy wastes; pharmaceuticals – must be treated with incineration or alternative method approved by the department
• Several Autoclave and alternative treatment (microwaves etc.) in the state.
  • Can handle sharps waste
  • Can handle all biomedical waste that does not have to be incinerated.
  • No facilities in state to handle incineration waste
What are the operations at off site facilities?

Waste which is going off site to be processed is segregated at the generator facility and properly packaged and marked based on the waste stream.

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<th>Blood Saturated Materials</th>
<th>Sharps</th>
<th>Trace and Bulk Chemo</th>
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Most regulated medical waste is packaged in reusable containers or in boxes.
What are the operations at off site facilities?

• Proper labeling is key - will identify the hazardous materials.
• Non-hazardous pharmaceuticals will usually go in containers which are marked as such and are typically blue.
• Chemotherapy typically yellow.
• Hazardous waste is typically packaged in black containers – it is very important that hazardous waste pharmaceuticals are properly identified and segregated.

*Includes 1% Dual Waste, excludes controlled substances.
What are the operations at off site facilities?

- Some companies use bar codes to track and manage waste while others use stickers or container colors.
What are the operations at off site facilities?

• Once at the treatment facility waste will be placed in the proper disposal process.
• Most common is the autoclave process: Example below shows Autoclave process:
Different Processing Requirements

- Processing facility requirements will vary based on their validation process.
- Autoclaves get validated and operate based on time, temperature and pressure.
- Microwaves will operate based on time, frequency and temperature.
- Chemical treatment will be based on time and concentration of chemical loading.
- Conditions are typically identified in the permit conditions or separately in validation documentation
- Throughput will be based on permit limitations and validation
Some facilities will be required to have a waste water permit or pre-treatment processes prior to discharge into the local POTW.
What are the operations at off site facilities?

- Waste which cannot be processed at the facility will be segregated based on need for incineration and loaded onto other transfer vehicles.
What are the operations at off site facilities?

• Once waste is processed it is dumped into a transport vehicle to the landfill typically a compactor.
• Waste typically looks partly melted.
• Autoclaving process will typically reduce volume by about 30-60%
Where is the waste going?

• No incinerators in the state
  • Waste is transferred to UT, AR, TX, KC, OR, ND
  • Generators are comingling wastes which increase need for incineration – Not all incinerators are able to accept all wastes
  • Pharmaceutical wastes which may be treated for biohazard component would still be considered CA only dangerous waste
  • Testing is too cost prohibitive for hospitals to do LD50 testing on all pharmaceuticals to dispose of as solid waste
  • Most Landfills prohibited from taking CA Only Dangerous Waste
• Increased awareness of emerging contaminants and Personal Care Products and Pharmaceuticals increasing incineration demand.

List of facilities:

http://www.cdph.ca.gov/certlic/medicalwaste/Documents/MedicalWaste/OffsitetreatmentList.pdf
New Incinerator Regulations

• 1997 – HMIWI Incinerator regulations – approximately 3000 medical waste incinerators
• Compliance required by September 2002 – stringent requirements and incinerators were replaced with alternative technologies like autoclaving
• Sierra club and Environmental Justice sued EPA and has been in litigation since 1997 – Court mandate to enact regulations by September 15, 2009
• 54 incinerators remain – 14 commercial units
• EPA predicts many more will close and no new incinerators will be built
• No incinerators in CA for several years.
• HMIWI – incinerator rules – Sept 15th – Federal Register Oct 6th
• Very stringent requirements for pollutants and removal of SSM exemption provisions
• Will likely impact remaining incinerators
Technology Options

- Autoclave
- Microwave
- Rotoclave
- Chemclave
- Plasma Arch
- Gasification

NOTE: Though many alternative technologies have been introduced in the state, activists and local community groups have been very opposed in the state.

- Chemical treatment with shredding on site and mobile
Overview

• Medical waste can be a complicated issue.

• Many state regulations for generators, transporters and treatment facilities

• Off site processing continues to be the main method for treatment

• Requires proper management of the waste from generator through the treatment process

• Currently in CA, all of the incineration waste must go out of state to be processed - New regulations making incineration more difficult

• Not many new technology options are commercially viable
Thank you!!

Questions?

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