Hazardous Waste Compliance Update and Healthcare P2 Opportunities

Presentation to the New England Healthcare Engineers’ Society – Twin State Seminar

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Agenda

Federal Regulatory Update

• **Final** Hazardous Waste Generators Improvement Rule
• **Final** Hazardous Waste Electronic Manifests Rule
• **Draft** Rule – Management Standards for Hazardous Waste Pharmaceuticals
• **Proposed** Rule – Adding Aerosol Cans to the Universal Waste Regulations

Healthcare Pollution Prevention Opportunities
Hazardous Waste Generator Improvements Rule

- Proposed rule on September 25, 2015
- The EPA Administrator signed the final HW Generator Improvements Rule on October 28, 2016
- Published in the Federal Register on November 28, 2016.
Hazardous Waste Generator Improvements Rule

When will the final rule be effective?

• States authorized to administer the hazardous waste program must adopt more stringent provisions in order to retain their authorized status.

• Authorized states will not be required to adopt those provisions of the rule that are less stringent or equivalently stringent than the current hazardous waste regulations.

• Authorized states will have to adopt the more stringent provisions by July 1, 2018 (or July 1, 2019 if state law change is needed).
Hazardous Waste Generator Improvements Rule

Current Status of Rule Adoption
Nationwide

The new rule is currently in place in the blue and purple states on this map.

Note – none of the six New England states have adopted the rule yet.

Last updated on August 9, 2018
Source: US EPA
## Hazardous Waste Generator Improvements Rule

### Current Status of New England States Rule Adoption

<table>
<thead>
<tr>
<th>State Agency</th>
<th>Status of Rulemaking</th>
<th>Date Proposed Rule Published</th>
<th>Public Hearing Dates, Comment Periods, Meeting Notices</th>
<th>Final Rule Effective Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>CT DEEP</td>
<td>Internal Discussions</td>
<td>Not Yet Determined</td>
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<td>Not Yet Determined</td>
<td>Not Yet Determined</td>
<td>2019</td>
</tr>
<tr>
<td>RI DEM</td>
<td>Drafting Regulations</td>
<td>Summer 2018</td>
<td>Formal Comments in Summer 2018</td>
<td>Late 2018</td>
</tr>
<tr>
<td>VT DEC</td>
<td>Drafting Regulations</td>
<td>Late Summer</td>
<td>Fall 2018</td>
<td>2019</td>
</tr>
</tbody>
</table>

[http://www.retailcrc.org/Pages/State-Tracking-Matrix.aspx](http://www.retailcrc.org/Pages/State-Tracking-Matrix.aspx) Updated July 2018
Hazardous Waste Generator Improvements Rule

Goals of Revision (according to USEPA)

• Make the rules easier to understand
• Facilitate better compliance
• Greater flexibility in how hazardous waste is managed
  — Decrease regulatory burden, if episodic waste is generated
  — Allowing a very small quantity generator (VSQG) to send its hazardous waste to a large quantity generator (LQG) under control of the same person.
• Close important gaps in the regulations
• Enhances safety of facilities, employees, and the general public by improving hazardous waste risk communication
• Ensuring emergency management requirements meet today’s needs.
Hazardous Waste Generator Improvements Rule

CESQGs no more

• New term is Very Small Quantity Generator (VSQG)
• Same generation thresholds (<220 lbs/mo)

Reorganization of Regulations to Facilitate Compliance

• The VSQG (formerly CESQG) regulations that were in 40 CFR 261.5 have been moved to 40 CFR part 262 so that the generator regulations are all together.
• The regulations for SQGs and LQGs were in 40 CFR 262.34 and then sent the user to parts 265 and 268 for more information, as necessary.
  − This final rule consolidates the regulations for each category of generator (40 CFR 262.14 for VSQGs, 40 CFR 262.16 for SQGs, and 40 CFR 262.17 for LQGs) so that the user can find most requirements in one place for review and use.
Hazardous Waste Generator Improvements Rule

Waste Determinations – 40 CFR 262.11

Clarified waste determination recordkeeping requirements for SQGs/LQGs – 3 years from last disposal

User knowledge more prescriptive

• Formerly – “Applying knowledge of the hazard characteristic of the waste in light of the materials or the processes used”

• Now – “knowledge may include process knowledge; knowledge of products, by-products, and intermediates produced by the manufacturing process; chemical or physical characterization of wastes; information on the chemical and physical properties of the chemicals used or produced by the process or otherwise contained in the waste; testing that illustrates the properties of the waste; or other reliable and relevant information about the properties of the waste or its constituents.”
Hazardous Waste Generator Improvements Rule

New section 40 CFR 262.13 clarifies the process for a generator to determine its generator category each calendar month.

Table 1 - Generator Categories Based on Quantity of Waste Generated in a Calendar Month

<table>
<thead>
<tr>
<th>Quantity of acute hazardous waste generated in a calendar month</th>
<th>Quantity of non-acute hazardous waste generated in a calendar month</th>
<th>Quantity of residues from a cleanup of acute hazardous waste generated in a calendar month</th>
<th>Generator Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>&gt;1 kg</td>
<td>Any amount</td>
<td>Any amount</td>
<td>Large quantity generator</td>
</tr>
<tr>
<td>Any amount</td>
<td>&gt; 1,000 kg</td>
<td>Any amount</td>
<td>Large quantity generator</td>
</tr>
<tr>
<td>Any amount</td>
<td>Any amount</td>
<td>&gt; 100 kg</td>
<td>Large quantity generator</td>
</tr>
<tr>
<td>&lt; 1 kg</td>
<td>&gt; 100 kg and &lt; 1,000 kg</td>
<td>&lt; 100 kg</td>
<td>Small quantity generator</td>
</tr>
<tr>
<td>&lt; 1 kg</td>
<td>&lt; 100 kg</td>
<td>&lt; 100 kg</td>
<td>Very small quantity generator</td>
</tr>
</tbody>
</table>
Hazardous Waste Generator Improvements Rule

Episodic Generation – 40 CFR 262 Subpart L

Generators can maintain their existing category if they:

• Have only one planned or unplanned episode per calendar year (they can petition the USEPA/state to have one planned and one unplanned episode)
• Notify USEPA/state 30 days before planned episode using Form 8700-12
• Notify USEPA/state 72 hours after unplanned episode using Form 8700-12
• Maintain records
Generators with multiple facilities can bring wastes from VSQGs to their own LQG without a RCRA permit if:

- Facilities are under control of the same entity
- The VSQG marks and labels waste containers with “Hazardous Waste” and the waste hazards
- The LQG notifies on Form 8700-12, keeps records for each shipment, reports waste in biennial report, and manages waste under the LQG requirements
Satellite Accumulation Area Clarifications – 40 CFR 262.15

- Allows containers to remain open temporarily when adding, removing, or consolidating waste or when temporary venting of a container is necessary for the proper operation of equipment or to prevent dangerous situations such as build-up of pressure.

- Clarified that three days means three consecutive days

- Made marking and labeling requirements consistent with central accumulation areas (words “Hazardous Waste” and hazards)

- Reactive hazardous waste now has to be stored at or near point of generation
Hazardous Waste Generator Improvements Rule

SQGs Re-Notification – 40 CFR 262.18(d)

• SQGs must re-register with USEPA/State every four years unless the State requires more frequent notification
• States are free to enact electronic notification
• Compliance date is delayed until 2021 to get programs in place

Table 2 - Size of Generator Universe

<table>
<thead>
<tr>
<th>Generator Status</th>
<th>Number of Facilities</th>
<th>Total Hazardous Waste Generated (tons)</th>
<th>Percent of Total Hazardous Waste Generated</th>
</tr>
</thead>
<tbody>
<tr>
<td>VSQGs</td>
<td>353,400-591,800</td>
<td>46,000-148,000</td>
<td>&lt;1%</td>
</tr>
<tr>
<td>SQGs</td>
<td>49,900-64,300</td>
<td>66,000-141,000</td>
<td>&lt;1%</td>
</tr>
<tr>
<td>LQGs</td>
<td>20,800</td>
<td>35.2 million</td>
<td>99%</td>
</tr>
<tr>
<td>Total</td>
<td>424,100-676,900</td>
<td>35.3-35.4 million</td>
<td>100%</td>
</tr>
</tbody>
</table>
Hazardous Waste Generator Improvements Rule

Emergency Preparedness/Planning – 40 CFR 262.16(b) and 40 CFR 262.256

• Generators must document that they have attempted to make arrangements with local emergency responders (or that arrangements were sought but not obtained) and keep the documentation in the facility’s operating record.

• Requires new LQGs to include a Quick Reference Guide in their contingency plan that contains information most critical for immediate response to an event.

• Quick Reference Guide can be added when the contingency plan is next updated.
### Eight Elements of Quick Reference Guide

<table>
<thead>
<tr>
<th></th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Types of hazardous waste and associated hazards</td>
</tr>
<tr>
<td>2</td>
<td>Maximum amount of hazardous wastes</td>
</tr>
<tr>
<td>3</td>
<td>Hazardous wastes requiring special treatment</td>
</tr>
<tr>
<td>4</td>
<td>Map showing where hazardous wastes are generated/accumulated</td>
</tr>
<tr>
<td>5</td>
<td>Routes of access and evacuation</td>
</tr>
<tr>
<td>6</td>
<td>Location of water supply</td>
</tr>
<tr>
<td>7</td>
<td>On-site notification system identification</td>
</tr>
<tr>
<td>8</td>
<td>Emergency coordinator contact info</td>
</tr>
</tbody>
</table>
Discussion and Questions?

For more information:
https://www.epa.gov/hwgenerators/final-rule-hazardous-waste-generator-improvements
Electronic Manifest Update

The Hazardous Waste Electronic Manifest Establishment Act was signed into law on October 5, 2012 and authorized USEPA to implement a national electronic manifest system.

Benefits of the e-Manifest system (according to USEPA) include:

• Cost savings (likely to state agencies and perhaps transporters);
• Creation of one-stop reporting of accurate manifest data for use by USEPA and states;
• Transporters who act as offerors of their customers’ shipments may sign the manifest “on behalf of” the generator if the transporter prepares the shipment and the manifest for the generator and signs the generator/offeror certification; and
• The potential for integrating manifest reporting with RCRA biennial reporting process and other federal and state information systems.
Electronic Manifest Update

The e-Manifest system officially launched on June 30, 2018.

Companies now have the option to use electronic manifests:

New manifests fees:

- **Receiving facilities** must submit manifests to USEPA and pay a user fee for each manifest submitted. These fees are dedicated to pay costs for developing/operating the national e-Manifest system.
  - Final e-Manifest User Fees
    - Paper Manifest Mailed to USEPA: $15.00
    - Scanned Image: $10.00
    - Data + Image: $6.50
    - Electronic: $5.00
- Generators do not have manifest fees but they may be charged by transporters/receiving facilities to reimburse them for their fees.
Electronic Manifest Update

How to register for the e-Manifest system

1. Obtain an EPA ID number (SQGs and LQGs likely already have ID numbers but VSQGs will need to apply for one).

2. Determine who will be your facility’s “Site Managers”.
   - They have permission to view, create, and sign electronic forms for e-Manifest.
   - Site Managers also manage and approve permissions for other users in their organization.

3. Register for e-Manifest in RCRAInfo
   - Go to the [RCRAInfo Sign in page](#) to begin the registration process

4. USEPA or State Agency approves registration
Electronic Manifest Update

https://rcrainfo.epa.gov/rcrainfoprod/action/secured/login

Warning Notice and Privacy Policy

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2. unauthorized access to or unauthorized use of U.S. Government information or information systems is subject to criminal, civil, administrative, or other lawful action;
3. the term U.S. Government information system includes systems operated on behalf of the U.S. Government;
4. you have no reasonable expectation of privacy regarding any communications or information used, transmitted, or stored on U.S. Government information systems;
5. at any time, the U.S. Government may for any lawful government purpose, without notice, monitor, intercept, search, and seize any authorized or unauthorized communication to or from U.S. Government information systems or information used or stored on U.S. Government information systems;
6. at any time, the U.S. Government may for any lawful government purpose, search and seize any authorized or unauthorized device, that stores U.S. Government information;
7. any communications or information used, transmitted, or stored on U.S. Government information systems may be used or disclosed for any lawful government purpose, including but not limited to, administrative purposes, penetration testing, communication security monitoring, personnel misconduct measures, law enforcement, and counterintelligence inquiries; and
Electronic Manifest Update

Generators who are not registered in e-Manifest can continue to use paper manifests but...

- States will likely mandate the use of e-Manifest in the future
- Generators must register for e-Manifest if they wish to sign or view manifests electronically in the system or make manifest corrections.
- A hybrid manifest approach is possible
  - The generator and initial transporter sign a paper manifest copy and retain it on-site. The initial transporter and subsequent waste handlers then process the remainder of the transaction electronically.
  - Generators can continue to sign in the field and retain a paper copy of their initial manifest just as they have done under the existing manifest system
Discussion and Questions?

For more information:
https://www.epa.gov/e-manifest
The USEPA Administrator signed the proposed Management Standards for Hazardous Pharmaceuticals Rule on August 31, 2015.

Published in the Federal Register on September 25, 2015.

On June 27, 2018, USEPA submitted its final Management Standards for Hazardous Waste Pharmaceuticals rule to the Office of Management and Budget, which reviews every final rule before its publication in the Federal Register.
Proposed Pharmaceutical Rule Definitions

Pharmaceutical

• Any chemical/biological product intended for use in the diagnosis, cure, mitigation, care, treatment, or prevention of disease or injury of a human or other animal;
• Any chemical/biological product intended to affect the structure or function of the body of a human or other animal.
• This definition includes, but is not limited to:
  – Dietary supplements;
  – Prescription drugs;
  – Over-the-counter drugs (OTCs);
  – Residues of pharmaceuticals remaining in containers;
  – Personal protective equipment and clean-up materials contaminated with pharmaceuticals;
• Includes all dose forms including tablets, capsules, gums, lozenges, liquids, ointments, lotions, IVs, antiseptics, patches, etc.
Proposed Pharmaceutical Rule Definitions

Healthcare Facility

• Provides preventative, diagnostic, therapeutic, rehabilitative, maintenance or palliative care, and counseling, service, assessment or procedure with respect to the physical or mental condition, or functional status, of a human or animal or that affects the structure or function of the human or animal body; OR
• Sells or dispenses over-the-counter or prescription pharmaceuticals.
• This definition includes, but is not limited to:
  – Hospitals, including psychiatric hospitals
  – Pharmacies, including long-term care or mail-order pharmacies
  – Retail stores with pharmacies
  – Health clinics and surgical centers
  – Long-term care facilities
  – Physicians offices, including dental, optical, & chiropractors
  – Veterinary clinics and hospitals
  – Drug compounding facilities
  – Coroners & medical examiners
• Does not include drug manufacturers
Benefits of Proposed Pharmaceutical Rule – Acute Hazardous Waste

**Current Requirement** - Healthcare Facilities are often LQGs because of generation of 1 kg/mo of acute hazardous waste (nicotine, warfarin)

- High regulatory burden for these facilities (shorter accumulation time, contingency planning, biennial reporting, increased training);

**Proposed change** - HW pharmaceuticals do not have to be counted toward the healthcare facility’s generator status when they are managed under this rule

- No SQG or LQG status for HW pharmaceuticals
- All HW pharmaceuticals are managed the same
- Don’t have to keep track of monthly generation for hazardous waste pharmaceuticals
- Reduces incidences of episodic generation
- Removes regulatory disincentive for managing non-hazardous pharmaceuticals as hazardous
Benefits of Proposed Pharmaceutical Rule - Residues

Current requirement – if residues are acute/P-listed HW, then to be considered “RCRA empty,” containers must be triple-rinsed.

Proposed change - residues in unit-dose containers and dispensing bottles/vials would be exempt from RCRA;

Current requirement – RCRA empty container rules apply to residues in very small containers used in healthcare setting, including:
- Vials
- Dixie cups
- Blister packs, etc.

Proposed change – if all contents are removed (fully dispensed), it will be equivalent to rendering the container “RCRA empty” and container may be disposed of as non-hazardous waste
Clarification – Dispensed syringes would be exempt from RCRA provided:

- The syringe has been used to administer the pharmaceutical to a patient; and
- The syringe is placed in a sharps containers that is managed appropriately.

Clarification – All other containers, including delivery devices, that once held listed or characteristic pharmaceuticals, must be managed as hazardous waste, including:

- IV bags and tubing
- Inhalers
- Aerosols
- Nebulizers
- Tubes of ointment, gels or creams
Proposed Pharmaceutical Rule – Sewering of Pharmaceuticals

Current requirement – Flushing of pharmaceuticals has become a commonly used disposal method by healthcare facilities and is allowed by current RCRA regulation

Proposed change – Rule bans the sewering of HW pharmaceuticals
  – Sewer ban applies to all healthcare facilities including CESQGs (VSQGs)
    • otherwise CESQG healthcare facilities are not subject to the proposed rule
  – Prevents 6,400 tons of hazardous waste pharmaceuticals from contaminating the water per year
  – Sewer ban reinforces and highlights USEPA’s policy against flushing pharmaceuticals
  – USEPA would join other jurisdictions with sewer bans for pharmaceuticals
Proposed Pharmaceutical Rule Fun Facts

• Likely to be included as 40 CFR 266, Subpart P
• Does not apply to CESQGs (VSQGs)
• The proposed rule is considered more stringent than current policy and regulation
  – States will be required to adopt the final rule
• The sewer ban is considered a Hazardous and Solid Waste Amendments provision
  – It will be effective in all states upon the effective date for the rule, even before the state adopts it
Discussion and Questions?

For more information:
https://www.epa.gov/hwgenerators/management-pharmaceutical-hazardous-waste
Adding Aerosol Cans to the Universal Waste Regulations

Benefits of this recharacterization include:

• Ease regulatory burdens on retail stores and others that discard aerosol cans;
• Promote the collection and recycling of aerosol cans; and
• Encourage the development of municipal and commercial programs to reduce the quantity of these wastes going to municipal solid waste landfills or combustors.
Adding Aerosol Cans to the Universal Waste Regulations

Proposed Change

- Existing UW requirements that apply to Small Quantity Handlers and Large Quantity Handlers of UW would be applicable to discarded aerosol cans
  - Waste management standards
  - Container labeling
  - Accumulation time limits
  - Employee training
  - Response to releases
Adding Aerosol Cans to the Universal Waste Regulations

Waste Management Standards

• Aerosol can containers must be structurally sound and compatible with the contents of the can
• Show no evidence of leaks, spills, damage
• Handlers may sort aerosol cans by type and consolidate intact aerosol cans in larger containers
• Handlers can remove actuators to reduce the risk of accidental release

Container labeling

• “Universal Waste – Aerosol Cans”
• “Waste Aerosol Cans”
• “Used Aerosol Cans”
Accumulation time limits

• Less than one year

Employee Training

• “Must inform all employees who handle or have responsibility for managing universal waste. The information must describe proper handling and emergency procedures appropriate to the type(s) of universal waste handled at the facility”

Response to Releases

• Immediately contain all releases of universal wastes and determine if they are now hazardous before disposal
Puncturing Aerosol Cans

• Handlers may puncture and drain used aerosols if they recycle the empty punctured can and use a commercial device specifically designed to puncture aerosol cans and effectively contain residue and any air emissions
  – E.g. 55-gallon drum with a carbon filter
  – Use in a well-ventilated area free from sparks and ignition sources
  – Use of PPE
  – Segregating incompatible materials
  – Residue may need to be handled as a hazardous waste
  – Written procedure needed
    » How to safely puncture and drain UW aerosol cans (including operation and maintenance of the unit),
    » segregate incompatible wastes,
    » proper waste management practices to prevent fires or releases;
    » ensure employees operating the device are trained;
    » spill clean-up procedures

Adding Aerosol Cans to the Universal Waste Regulations
Discussion and Questions?

For more information: [https://www.epa.gov/hw/increasing-recycling-adding-aerosol-cans-universal-waste-regulations](https://www.epa.gov/hw/increasing-recycling-adding-aerosol-cans-universal-waste-regulations)
Pollution Prevention (P2) is any practice that reduces, eliminates, or prevents pollution at its source, also known as "source reduction."

- Source reduction is more desirable than recycling, treatment and disposal.
- P2 can occur through cost-effective changes in production, operation, and raw materials use.
- P2 opportunities are often not realized:
  - Existing regulations focus upon treatment and disposal.
  - Upfront costs can be a hinderance
Pollution Prevention (P2) Healthcare Tips

Cafeteria/Kitchen

- Waste types: Aluminum, glass, plastic, cardboard, shrink-wrap, food waste, disposable/compostable to-go containers, steel, tin, equipment, utensils, reusable service ware, gloves, towels.
  - Use washable plates, eating utensils, glasses, and cups for cafeteria and patient service. (As an alternative to washable cutlery, consider using compostable cutlery).
  - Consider the best use of unserved food and food prep waste—follow the food hierarchy: prevent food waste, feed people (donate to local shelters), feed animals, and then compost remaining materials.
  - Sell reusable mugs and/or offer discounts to those who use a reusable mug.
  - Establish an area for patrons to separate their waste from their recyclables. Clearly label bins. Put the garbage and recycling bins side-by-side.
  - Switch to dispensers (juice, water, etc.) for patients instead of individual cartons.
  - Establish a "think before you use" campaign to decrease use of disposable items.
  - Use environmentally friendly cleaning solutions.
  - Consider cooking oil collection for use as biodiesel.
  - Request your suppliers to eliminate extra packing materials and packaging.

https://www.calrecycle.ca.go
Pollution Prevention (P2) Healthcare Tips

Custodial Services

- Waste types: Cardboard, shrink wrap, garbage bags, cleaning supplies, batteries, old equipment, cleaning rags, gloves.
  - Eliminate the use of plastic trash bag liners in containers where it is unnecessary, such as paper bins. Clearly label the paper collection bins.
  - Use washable microfiber mops.
  - Buy cleaning substances in large gallon drums that can be refilled by your supplier.
  - Use concentrated cleaning solutions and environmentally preferable cleaning products.
  - Reuse packing materials and packaging.
  - Use nontoxic, low VOC interior paint, and recycled paint for exteriors (recycled paint is collected from consumers and remanufactured).
  - Offer appropriate sharps collection and clear signage for hospital staff and visitors.
  - Use a certified collector/recycler for electronic waste.

https://www.calrecycle.ca.gov
Pollution Prevention (P2) Healthcare Tips

Dock Area/Shipping and Receiving

- Waste types: Cardboard, shrink wrap, foam packaging peanuts, bubble wrap, pallets; collection point for recyclables.
  - Provide recycling bins to collect aluminum cans.
  - Have a bin(s) for waste and recyclables that are clearly labeled and placed side-by-side.
  - Designate areas of the dock for collecting materials, such as shrink wrap, peanuts/expanded polystyrene foam, and cardboard.
  - Repair pallets or repurpose wood that is not repairable. Donate wood to a local Habitat for Humanity facility.
  - Request that vendors and suppliers minimize packaging or use recyclable or biodegradable materials.
  - Reuse packing or ask vendors to take it back.

https://www.calrecycle.ca.gov
Pollution Prevention (P2) Healthcare Tips

Emergency Rooms/Exam Rooms

Waste types: Gowns, blue wrap, tools, biohazard/sharps containers, patient care supplies, prescription supplies, toiletries, equipment (beds, monitors, trays), gloves.

- Blue wrap is a highly specialized polypropylene (#5) plastic product used as a durable, sterile, protective cover, to wrap and store sterilized instruments trays in the operating rooms. Consider collection of clean material for recycling.

- Consider exam gowns that can be reused/re-sterilized.

- Use reusable sharps containers that are collected, emptied, washed and returned for reuse.

- When upgrading equipment, donate older equipment to underserved/vet clinics.

https://www.calrecycle.ca.gov
Facilities and Landscaping


– Donate materials such as furniture, art work, clean drums/plastic containers, and equipment.
– Work with contractors to divert C&D materials.
– Consider repurposed benches, recycled plastic lumber benches, and other environmentally preferable purchasing choices.
– Use mulching mowers and leave grass clippings on the lawn so they can decompose naturally.
– Landscape using plants that grow slowly or have plenty of growing space so they do not need to be trimmed often.
– Use native and/or drought tolerant plants to reduce water and energy use.
– Chip on-site for mulch, and compost on-site or through a city/county green waste program.

https://www.calrecycle.ca.gov
Pollution Prevention (P2) Healthcare Tips

**Fleet Services**

Waste types: Antifreeze, oil, rags, tires, filters.

- Have fleet staff determine their own driving patterns (log mileage for a designated time range) and explore options and incentives for reducing their mileage.
- Inflate tires to appropriate tire pressure.
- Consider retreaded tires for trucks.
- Establish cooling stations and/or rain stations for visiting drivers to avoid running the truck engine.
- Use re-refined oil and environmental oil filters.

[https://www.calrecycle.ca.gov](https://www.calrecycle.ca.gov)
Pollution Prevention (P2) Healthcare Tips

Laboratories

Waste types: Glassware, sharps, bio-hazards, petri dishes, hard plastic shipping containers, cardboard, expanded polystyrene containers, disposable packing materials, gloves.

- Discuss program efficiency options with your vendor (can vendor use reusable containers for delivery of materials and then backhaul the containers from the previous delivery).
- Discuss collection system for sharps and bio hazards with your collection vendor.
- Contact your hauler to determine if there is a local collection program for expanded polystyrene containers. If not, request that your suppliers use reusable/recyclable packaging material.

https://www.calrecycle.ca.gov
Pollution Prevention (P2) Healthcare Tips

Medical/Surgical Supply Rooms

Waste types: Gowns, blue wrap, tools, plastic tubing, biohazards/sharps, patient care supplies, equipment (monitors, trays), gloves.

- Work with suppliers to reduce unused items from custom surgical packs.
- Switch from disposable to reusable medical instruments (for example, stainless steel trays, laparoscopic instruments).
- Purchase washable surgical, isolation gowns and sterilization trays.
- Mend gown ties so they last longer.
- Convert surgical drapes into biopsy cloths.
- Sanitize and reuse equipment.
- Donate clean, unused operating room equipment and supplies for reuse.

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Pollution Prevention (P2) Healthcare Tips

Offices


- Print only what you need, set photocopier to make double-sided copies, reuse single-sided sheets, recycle and reduce office paper.
- Distribute information electronically via e-mail or intranet. If electronic distribution will not work, then post information on a central bulletin board for staff to check.
- Consider collection or composting of food waste such as break room scraps, meeting leftovers, and employee leftovers.
- Purchase 100 percent recycled-content paper for copying, stationery, and business cards.
- Cut down on multiple subscriptions of medical publications--ask staff to share.

https://www.calrecycle.ca.gov
Pollution Prevention (P2) Healthcare Tips

Patient Care Supplies

Waste types: Gowns, linens, toiletries.

- Determine if cloth towels can be used, reused, and then later made for rags.
- Replace paper towels with air dryers where feasible.
- Reduce the quantity of items purchased and purchase durable, reusable products and items that can be repaired.
- Look for ways to reduce battery waste:
  - Utilize products that utilize power obtained through mechanical means, such as winding, shaking, or squeezing.
  - Utilize rechargeable batteries and chargers.
- Inform patients about Medication Waste Disposal
- Donate linens and textiles to be used as feedstock for other products.
- Eliminate duplicate admission kits and replace disposable admissions kits (water pitchers, glasses, and bed pans) with reusable’s in patient rooms where feasible.
- Use washable, resterilized linens, mattress pads, gowns where possible.
- Educate patients about old mercury items and offer collection.
- Set up system where nursing staff evaluate personal care items such as aspirin packets, tissues, shampoo, baby wipes, and diapers for reuse through donations (following infection control guidelines) instead of automatically disposing them.

https://www.calrecycle.ca.gov
Pollution Prevention (P2) Healthcare Tips

Purchasing


- Reuse durable products and purchase refillable, or returnable products.
- Buy environmentally preferable/recycled content products whenever possible and buy in bulk whenever possible to reduce packaging.
- Select or ask vendors to follow packaging preference criteria, for example if a vendor can offer no disposable packaging, minimal packaging, or take back for reuse.
- Reuse packaging and other available material for out-going deliveries.
- Improve ordering practices so perishable products don't become outdated and unusable.
- Buy medical devices that do not contain mercury or lead to reduce the release of toxins into the environment.
- Recycle copier and printer toner cartridges. Ask the manufacturers about take-back programs or locate a local business to refurbish or recycle the cartridges.
- Buy concentrated cleaning solutions for staff to mix as needed. In addition, buy environmentally friendly cleaners.
- Encourage reuse among employees and departments. Establish a reuse room or centralized “trading post” table for surplus or unwanted materials and supplies.

https://www.calrecycle.ca.go
Pollution Prevention (P2) Healthcare Resources

CTDEEP P2 Resources for Health Care Facilities

NHDES P2 in Healthcare Facilities

CalRecycle Health Care Industry Waste Reduction and Recycling
https://www.calrecycle.ca.gov/HealthCare/

Healthier Hospitals
http://www.healthierhospitals.org/

USEPA Healthcare in New England
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