



EHSSSENTIALS 2018

Environmental, Health & Safety Symposium for Healthcare

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Stanford University
Medical Center
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How to Win Friends and Influence Waste

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EHSSSENTIALS 2018

Environmental, Health & Safety Symposium for Healthcare

Purpose

- Provide an understanding of the scope and impact of health care waste
- Provide an understanding of challenges of managing waste generated from the delivery health care
- Provide examples of actions that Kaiser Permanente has taken to address the challenges of managing waste

Healthcare Waste

- It is estimated that 4.67 million tons of waste are generated by health care in the U.S. annually
- One operating room generates about 100 tons of waste annually
- 4.7 tons of waste generated per licensed bed annually
- 1,200 pounds of waste per FTE annually

Domtar | CELEBRATES SALE OF FIVE MILLION TONS OF FOREST STEWARDSHIP COUNCIL® CERTIFIED PAPER

Domtar, the sustainable paper company, is celebrating a major milestone: the sale of five million tons of Forest Stewardship Council (FSC)® certified paper. This achievement cements the company's position as a leader in sustainability.

SO JUST HOW MUCH IS FIVE MILLION TONS?

Enough to fill more than 200,000 trucks, which parked end-to-end would stretch

3,517 miles

greater than the distance between **SAN FRANCISCO AND BOSTON**

The equivalent of more than

6.5 billion HARRY POTTER NOVELS

When stacked in pallets, equal to the height of

12,895 EMPIRE STATE BUILDINGS

Equal to the weight of

714,285 AFRICAN ELEPHANTS

► **WHY DOES THIS MATTER?**

Whether you're buying paper for your business, your family or your school, the decisions you make matter. That's why, as part of the EarthChoice® commitment to sustainable business, Domtar provides responsibly sourced FSC® certified paper. In fact, the EarthChoice® Product Line offers the widest range of FSC® certified paper on the market today, helping benefit local economies, wildlife and the long-term health of the world's forests.

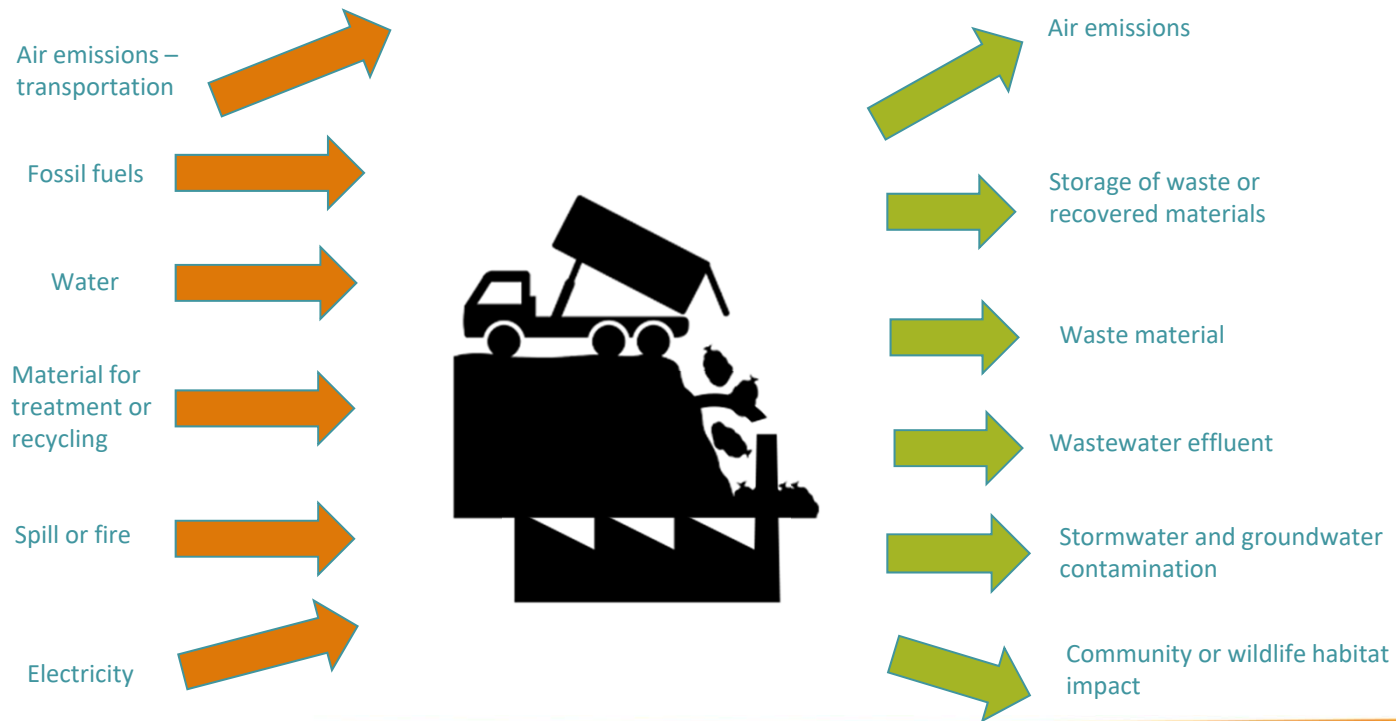
To learn more about EarthChoice, please visit WWW.DOMTAR.COM/EARTHCHOICE.

EARTH CHOICE by Domtar

Healthcare Generates Many Different Waste Streams

- Solid municipal waste (regular trash)
- Recyclable solid waste – bottles, cans, cardboard, paper
- Confidential (HIPPA) waste
- Food waste
- Infectious “red bag” waste
- Sharps waste
- Pharmaceutical waste – RCRA and non-RCRA
- Pathology waste
- Chemotherapeutic waste (trace and bulk)
- RCRA hazardous waste
- Batteries
- Lamps
- Computers and IT equipment
- Medical equipment
- Appliances/electronics
- Yard waste
- Paint
- Furniture
- Construction waste
- Asbestos
- Lead

Waste Treatment and Disposal = Potential Human Health Risk



Health Impacts of Waste

- Hazardous materials in regular trash that are sent to landfills can leach into groundwater
- Waste that is not properly collected can result in potentially harmful human exposure
 - Every year, eight million metric tons of plastic end up in our oceans, it's equivalent to five grocery bags filled with plastic for every foot of coastline
 - A study found analyzed fifteen brands of common table salt bought at supermarkets across China; plastic contamination was found in salt sourced from the ocean, more than 1,200 particles of plastic per lb of sea salt were measured
- Making paper from recycled paper reduces the related contribution to air pollution 95%
- Making glass from recycled material cuts related water pollution by 50%

Recycling Impact on the Environment and the Economy

- When U.S. recycling levels reach 75% it will be the environmental and CO₂ equivalent of removing 55 million cars from U.S. roads each year
 - Recycling one ton of plastic bottles saves the equivalent energy usage of a two-person household for one year
 - Every three months, Americans throw enough aluminum in the landfills to build our nation's entire commercial air fleet
- When U.S. recycling levels reach 75% it will generate 1.5 million new jobs in the U.S. (net)
 - Recycling generates 7-10 more jobs than landfills and waste-to-energy plants
- In recent months recycling processing plants have been shut down; a primary cause is contamination in recycled waste streams
 - In California more than 450 recycling plants have shut down in the last several years

Waste Disposal in Healthcare is Costly

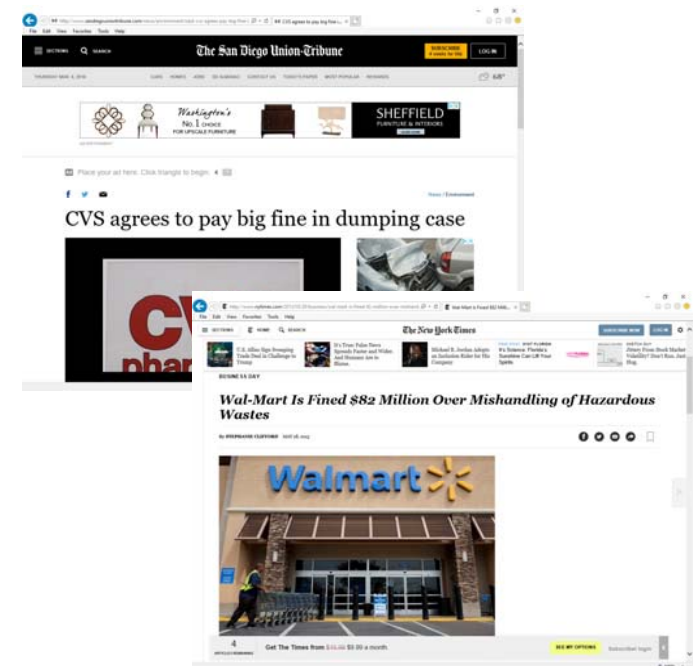
- The average cost of waste treatment and disposal in healthcare (aggregate of solid, medical, hazardous) is \$245 per ton
- Median cost per ton for treatment and disposal:
 - Solid waste – \$112 per ton
 - Recycling – \$136 per ton
 - Medical waste – \$1,119 per ton
 - Hazardous waste – \$4,928 per ton

Healthcare Waste – Numerous Regulatory Requirements

- Waste must be collected and segregated to ensure it is:
 - Managed safely within the building
 - Treated and disposed of appropriately
- Regulations specify requirements for medical, hazardous, universal, and confidential waste including:
 - Container type
 - Labeling
 - Storage limits
 - Shipping containers
 - Manifesting and documentation
 - Reporting

Healthcare Waste – Risk Management

- More than just “regulatory compliance”
 - Administrative, civil, and criminal liability
 - Unfair business practice penalties
 - Cradle to grave – financial liability for clean up and remediation
 - Brand image



KP Waste Management Actions

- Reducing volume waste
- Reducing toxicity of waste
- Improve efficiencies and simplify waste collection processes
- Reducing risk

KP 2025 Environmental Stewardship Goals



- Improve the health of communities
- Prioritize Kaiser Permanente's actions
- Capitalize on Kaiser Permanente's leadership to accelerate environmental improvement



Climate Action

Become "carbon net positive" by buying enough clean energy and carbon offsets to remove more greenhouse gases from the atmosphere than we emit



Sustainable Food

Buy all of our food locally or from farms and producers that use sustainable practices, including using antibiotics responsibly



Waste Reduction

Recycle, reuse, or compost 100% of our non-hazardous waste



Water Conservation

Reduce the amount of water we use by 25% per square foot of buildings



Safer Products

Increase our purchase of products and materials that meet environmental standards to 50%



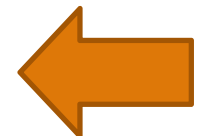
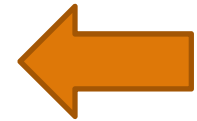
Sustaining Sustainability

Meet international standards for environmental management at all of our hospitals



Collaboration

Pursue new collaborations to reduce environmental risks to foodsheds, watersheds, and air basins supplying our communities



KP's Environmental Preferable Purchasing Standard Includes Waste Criteria

1. **DOES NOT CREATE A HAZARDOUS WASTE (PRODUCT)**
 - Product is not regulated as a state or federal hazardous waste when used for its intended purpose
2. **10% OR MORE POST-CONSUMER RECYCLED CONTENT (PRODUCT)**
 - Product contains more than 10% post-consumer recycled content
3. **RECYCLABILITY (PRODUCT)**
 - Product is recyclable
4. **RECYCLED CONTENT (PRIMARY PACKAGING)**
 - Primary packaging – contains more than 10% post-consumer recycled content
5. **RECYCLED CONTENT (SECONDARY PACKAGING)**
 - Secondary packaging – contains more than 30% post-consumer recycled content
6. **FOREST STEWARDSHIP COUNCIL**
 - Packaging has received Forest Stewardship Council Certification
7. **CONSUMER-FRIENDLY RECYCLING LABELS**
 - Packing is labeled with consumer-friendly recycling information
8. **RECYCLABILITY (PACKAGING)**
 - Packaging is recyclable

Standardized Waste Container Colors

- KP has implemented standardized colors for waste containers:
 - Black – Hazardous Waste
 - Blue – Sharps/Pharmaceutical Waste
 - Yellow – Trace Chemotherapy
 - Red – Medical Waste
 - Clear – Universal Waste Batteries and Electronics
- Standard container colors and standard labels are intended to make decision making easier for staff and members disposing of waste

Reducing the Volume and Toxicity of Waste

- Disinfectant wipe packaging – changed from vertical “cannister” to horizontal “soft packaging”
 - Eliminates residual product requiring disposal as hazardous waste
 - Reduces plastic waste



Reducing the Volume and Toxicity of Waste

- Liquid phenol elimination in podiatry and dermatology to pre-impregnated phenol swabs
 - Reduces volume of hazardous waste, risk of spill



Reducing the Volume and Toxicity of Waste

- Conversion from aldehyde based high-level disinfectants to acid-based high-level disinfectants
 - Reduces toxicity of waste
- Single-use device reprocessing for high-dollar specialty devices
 - Reduces volume of waste, and potential cost savings purchasing reprocessed devices
- Reusable sharps containers
 - Reduces volume of plastic waste

Pathology Waste

- Tissue with formalin is disposed as State of California Hazardous Waste
- Eliminates the need to decant tissue from preservative and neutralize prior to drain disposal or collect separately as hazardous waste
- Eliminated occupational exposure to formaldehyde
- Cost savings by managing as hazardous waste

“Shred All” Paper

- KP is collecting all paper as confidential waste for shredding
- All shredded paper waste is recycled
- Makes decision making easier for staff
- Reduces the volume of paper in solid waste and EVS manpower needed to manage solid waste

Battery Recycling

- Utilizing Call2Recycle a not-for-profit waste battery stewardship and recycling program established by the battery industry
- All battery types can be commingled in the same container
- All batteries, including alkaline are recycled
- Three disposal options:
 - Collect all batteries in pre-paid mailers and ship back via UPS
 - Collect all batteries in bulk drums and ship back via freight (for large generators)
 - Collect recyclable chemistries separate for no-cost recycling

RCRA Hazardous Waste “Most-in-One” Container

- “Most-in-One” RCRA Waste container enables the collection of many, but not all, RCRA hazardous wastes in the same container
 - Waste items are already contain within the manufactures product packaging
- Also, allows for the collection of non-RCRA pharmaceuticals and trace chemo-therapy waste into the same container
- Reduces decision making needed by staff to correctly dispose of waste
- Reduces number of different types of containers that are needed
- Can use a container liner program at SSA Points

RCRA Hazardous Waste “Most-in-One” Container - Examples

All antineoplastic drug waste, production devices (close system transfer devices) and PPE; drugs including but not limited to:

- Alkeran (melphalan)
- Cyclophosphamide
- Daunomycin
- Etoposide
- Leukeran (chlorambucil)
- Mutamycin (mitomycin c)
- Palitaxel
- Topsar
- Vepsid
- Zanosar

Products with toxic concentrations of metals, such as:

- Chromium (vitamins)
- M-Cresol (insulin – all brands)
- Selenium (shampoos)
- Silver Sulfadiazine, Silver Sulfate Cream
- Silver treated wound dressings (e.g., Acticoat, Aquacel)

Products with flammable liquids, such as:

- Alcohol >24% (e.g., chloraprep)
- Acetone solutions
- Belladonna Tincture
- Coal Tar
- Collodion
- Ethyl chloride
- Methyl methacrylate (bone cement)
- Hand Sanitizing Gels
- Ammonium Inhalant
- Creams/Gels (e.g., hydroquinone, estrogen, divigel, Anebsol)
- Mouthwash
- Cough/Allergy Syrups
- Ear Dry

Products containing thimerosal (mercury) preservative, such as:

- Antibiotic Eye drops
- Nasal spray
- Flu Vaccines – multidose vials

Products that are corrosive:

- Acetic Acid
- Aluminum Chloride
- Dichloroacetic Acid
- Glycolic Acid
- Hydrochloric Acid
- Lactic Acid Solutions
- Monsels Ferric Substrate Solutions
- Potassium Hydroxide
- Sodium bisulfate
- Sodium Hydroxide
- Trichloro acetic Acid

Products containing phenol, such as:

- Throat sprays (e.g., Chlorasepticor GNP)
- Cepastat lozenges
- Castellani Paint

Products that are toxic, such as:

- Toothpaste
- Soaps and shampoos
- Surface disinfectants
- High-level disinfectants
- Lindane
- Unused Formalin/Cytology specimen container without tissue

Community Waste Collection Programs

- Offering the community safe disposal of pharmaceuticals and sharps reduces risk that waste will be improperly disposed or diverted
- Pharmaceutical disposal
 - DEA-regulated program – must be managed by a pharmacist
 - May be mandated in California by local ordinance, many programs are community funded
 - Facility is not the generator of the waste
 - May not be used for waste from the facility, only community waste
 - All types of pharmaceuticals
 - **Recommend that a sharps-disposal kiosk also be readily available**
- Sharps disposal
 - May be mandated in California by local ordinance
 - Facility is not the generator of the waste
 - May not be used for waste from the facility, only community waste
 - Typically not community funded
 - **Recommend a separate account if you are using your medical-waste vendor**
- SB 212 - Solid waste: pharmaceutical and sharps waste stewardship

Due Diligence

- KP uses CHWMEG an independent third party to conduct due diligence on waste treatment and disposal sites:
 - During sourcing processes
 - Ongoing vendor risk management processes
- Important to know and verify:
 - Where wastes going for treatment and disposal
 - Vendor reporting capabilities
 - If vendor is a broker or the owner of the treatment and disposal facility
 - If wastes being treated and disposed as stated by the vendor (and as you require)
 - Are the recyclable materials going to a recycling facility or landfill?
 - Many vendors will take recyclable materials to a landfill if there is repeated issues of contamination with the material
 - Financial strength of vendors and treatment/disposal sites
 - Operational performance
 - Age of operation and future capacity
 - Risk of fires, spills, contamination

Questions

