Waste Management at Mayo Clinic Rochester

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Overview

- Mayo Overview
- Municipal Solid Waste
- Incineration
- Regulated Medical Waste
- Recycling
- Low-Level Radioactive Waste
- Hazardous Waste
- C & D
- Medication Waste
- Summary/Video
Mayo Info

- Healthcare
  - Outpatient
    - ~50 floors over 4 buildings
  - Inpatient
    - 2 hospitals
    - 2059 beds

- Research

- Education
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Mayo Info

- 36,000 employees
- 95 buildings
- 15.8M square feet
- 1.5 million patient visits annually
It Takes A Team

- Environmental Services
- Waste Management
- Recycling Processors
- Hazardous Waste
- Radioactive Waste
- General Service (internal couriers)
- Construction and Maintenance Contractors
- Supervisors
- Administrators
- Educator
- Hauler & other vendors
- Generators
Waste Hierarchy

- Rethink
- Reduce
- Reuse
- Recycle
- Disposal
Municipal Solid Waste

• Typical contents
  – Office refuse
  – Kitchen scraps
  – Towels, non-recyclable paper

• Plus many non-typical contents
Municipal Solid Waste

- Incinerated
  - Mostly at Mayo incinerator
  - Some at Olmsted County WEF
Municipal Solid Waste

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Municipal Solid Waste

- 2009
  ~11 million pounds

- Contract hauler
Reusable Waste Containers

These waste containers are sanitized and reused.

- Glass Collection Containers
- Pipette-tip/Sharps Collection Containers
- Hazardous Medication Waste Containers
Regulated Medical Waste

- Potentially infectious
- Sharps
- Bloody (flowing/dripping)
Regulated Medical Waste

• Mostly incinerated
  – 1X use containers

• Some in reusable containers, autoclaved, shredded, landfilled (vendor)
  – May be changing
Regulated Medical Waste

- 2009
  4.6 million pounds
- Contract hauler
Recycling Program

Mayo Clinic Recycling Center
South Warehouse
Recycling Program

Began in 1991 and recycled 3 million pounds

- Aluminum Cans
- Glass
- Paper (newspaper, magazines, cardboard)
- Steel Cans

Now Mayo recycles between 9 and 10 million pounds annually.
Recycling Program

• Aluminum Cans

Commimgled Glass

& Plastic Beverage Containers

• Appliances
Recycling Program

- Batteries
- Cardboard
Recycling Program

Electronics/Computers

Fluorescent Light Bulbs
Scrap Metals

X-Ray Film
Recycling Program

Food Waste

• Food waste is sold to a local hog farmer
  – Food waste is cooked and fed to hogs
• 1.5 million pounds of food waste recycled annually
Glass Collection

- Glass items currently collected due to maintenance issues in Mayo incinerator
- Currently searching for recycling market
- Laboratory glass
- Glass slides
- Glass tubes
- Glass pipettes
Donations = Waste Reduction

- Reduces the waste stream thereby reducing disposal amounts and costs
- Items are reused
- Benefit to the community – local and international
Rochester Medical Relief Mission Group

- Created by Mayo physicians as a way to supply personal mission trips
- Eventually formed as a non-profit organization with physician board leadership
- Have sent donations to every continent except Antarctica
Common Donated Items:

- Exam tables
- Beds & Mattresses
- Gloves
- Dressings/Gauze
- Linens
- Wheelchairs
- Medical Equipment
- Lab Glasswares
- Office Supplies
Rochester Medical Relief Mission Group

Annual Donations = 250,000 pounds
Salvation Army – Furniture Donations

- Program started in early 1990’s
- Furniture/Cabinetry in good condition is donated
Salvation Army – Furniture Donations Program Process

• Salvation Army resells items in their thrift store
• Mayo Clinic employees receive a 25% discount on Mayo items
Community Food Response

- Food that is still useable and safe for consumption is donated to Community Food Response
- Kitchen staff collect food that is suitable for donation
- Community Food Response picks up the food several times per week
- Food is donated to community members in need
Facilities - Reuse

Mayo Facilities Warehouse

When areas are remodeled, building components are stored for future use:

- Door frames
- Hardware
- Light Fixtures
- Furniture
- Appliances
Low-Level Radioactive Waste

• Sources
  – Patient care
    • Diagnosis
    • Therapy
  – Research
  – Clinical labs

• Collection
• Decay-in-storage
• Disposal
Low-Level Radioactive Waste

2009
~65000 pounds
Hazardous Waste

- “Classic” hazardous waste
  - Solvents
  - Chemicals
  - Cleaners
  - Heavy metals
  - Spray cans
  - Batteries

- HW staff of 3 collects and processes
Hazardous Waste

- Sent to vendor for destruction
  - Vendor sites audited
  - Process is specified by us
- Universal waste handled similarly
C & D

- Largely handled by construction contractors
- Recyclables are removed and diverted to Recycling Center
Medication Wastes

- Relatively new
- Viewed as a separate program from “classic” HW
Waste Medication Collection
Background

- USEPA initiative

- Minnesota Pollution Control Agency initiative
  - Initial visits to healthcare facilities resulted in NOVs but no civil penalties
  - Next time, full compliance expected
Planning

Lots of questions to answer:

- What to collect?
- What containers to use?
- How to process?
- How to implement?
- How to educate?
- How to staff?
- How to pay for it all?
- Will this meet the regulatory requirements?
Teamwork

- Technical
- Logistics
- Training
- Implementation
Technical Aspects

• Regulatory Compliance
  – MN has “lethality” characteristic

• Evaluations of medications and other patient related items
  – Contracted for formulary review
    • Initial
    • New medications
  – Evaluated other items internally
Logistics

- Product design
- Product ordering
- Inventory management
- Process development
Training

• Training Groups
  – Nursing
  – Environmental Services
  – Others

• Training Programs
  – Live and on-line
• Training Sessions
Implementation

• Moving target
  – Learning as we went
    • Container issues
    • “What to collect”
  – Modified approach in the middle
Program Overview

- Selected containers
- Determined what should go in containers
- Trained nursing supervisors
- Supervisors completed an assessment form
- Installed/delivered containers
- Established SAAs and a system to move filled containers
- Contractor emptying of containers
- Shipment of waste
- Ongoing management
What Did We Do?

• Had formulary analyzed
• Label hazardous meds with a sticker
• 30/30 rule
• List other patient care items on website
What Did We Do?

- Selected two sizes reusable sharps containers
  - Black
  - Regulators like them
What Did We Do?

- Utilized existing internal distribution network for new containers
- Trained Environmental Services staff to handle these containers when filled
What Did We Do?

• Trained generators in large groups
  – Nurse Managers & other supervisors
  – “Train-the-trainer” approach

• Individualized training as needed

• Coordinated and oversaw installations
What Did We Do?

- Creative
- Some of our best meetings occurred in the hallway outside our offices, so.....
- ...we had a whiteboard installed to document the ideas (even the crazy ones!)
What Did We Do?

• Made a plan
  – Used MS Project
  – Posted the timeline for all to see

• Tracked our progress

• The secretaries understood and handled calls with the info posted
What Do We Collect?

- Hazardous medications
  - Labeled with a colored triangle
  - Medications <30 g or <30 ml
  - All P-code items & containers
- Other patient related hazardous items
  - Indicator tape
  - Alcohol based skin preps
  - Others as needed (list is on our internal web site)
Collected Material Handling

- Environmental Services takes from SAAs to accumulation area
- Contractor empties into plastic drums and ships to HW incinerator using HW manifest
Follow-Up

Completion of implementation was not the end

– Constantly fielding questions
– Internal web site
– New areas
  • New construction & remodeling
  • OOPS! We missed you
– Program changes
Lessons Learned

- Involve everyone who might be impacted
- Listen to them
- Establish some guiding principles
- Plan the change
- You can’t overdo the training
- Change direction when necessary but not on a whim
Lessons Learned (cont)

• Look at entire waste stream, not just hazardous waste
• Don’t forget you have other hazardous wastes
• Crazy ideas sometimes work
• Celebrate successes
• Compliance is the goal
Success Stories

- Surgery
- TAB Program
- Boxboard & Kraft Paper Recycling
- Electronics, increased recycling of components
Summary

• Large variety of waste streams
• Managers for each and an educator
• Team approach
• Cost control
• Employee “Buy-in”
Mayo's Recycling Program: A "Win Win" Proposition!