Minimizing Regulated Medical Waste

Marcy Yeshnowski
Tetra Tech EM Inc.
1. While we’re talking about RMW minimization, **NEVER** compromise safety and compliance.

2. Focus on what you can control.

3. Measure - let the numbers talk for you!
Regulated Medical Waste (RMW)

- H2E 10 Steps to Reducing Regulated Medical Waste
- Tools to help establish benchmarks, measure, and monitor your program
- P2 Strategies for Safely Reducing Red Bag Waste

BIOHAZARDOUS WASTE IS 13 TIMES MORE COSTLY TO DISPOSE OF THAN REGULAR TRASH
H2E 10 Steps to Reducing RMW

1. Understand State-specific RMW definitions

So what goes in the Red Bag?
So what should go in the Red Bag?

- Most infectious waste streams **DO NOT** go in red bag
- Items that do are generally derived from this category:

  *Blood and body fluid* contaminated items that are “saturated or dripping” and “those caked with dried blood or dried body fluids.”
... and what should not!

Unless visibly soiled with blood, these items do not belong in red bag trash:

- Bed Pans
- Empty specimen containers
- Dressings and gauze
- Diapers/Incontinence Pads
- Splints
- Masks, gowns, gloves
- Tapes
- Cotton
- Suction tubing
- Vent tubing
- Emesis basins
- Urinals
- Paper towels
- IV bags
- Casts and splints
- Packaging materials
- Foley bags and catheters
- Alcohol preps
H2E 10 Steps to Reducing RMW

1. Understand State-specific RMW definitions

2. Identify true waste costs and potential costs savings

3. Create a team to develop goals and an action plan
Data is a Powerful Tool

H2E has created a sample spreadsheet to capture waste data: http://www.h2e-online.org/pubs/WasteMgtTemplate.xls
RMW – One Part of a Comprehensive Waste Program

- Hospital Waste (Trash): 85%
- Regulated Medical Waste: 10-15%
- Hazardous Waste: <5%

Legend:
- Hospital Waste (Trash)
- Regulated Medical Waste
- Hazardous Waste
Phoenix Indian Medical Center
Red Bag Waste Data

Solid Waste Disposal Fee: $57/ton
Red Bag Waste Disposal Fee: $450 per ton ($0.22 per pound)
Create a Team - Keep Others Involved!

Create a diverse team comprised of staff from:

- Housekeeping
- Infection Control
- Nursing
- Safety
- Facilities
- Education
- Purchasing
- Laboratories
- Clinicians (especially those from the OR, ED, and other critical care areas)
H2E 10 Steps to Reducing RMW

1. Understand State-specific RMW definitions

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4. Planning for waste segregation
Plan for Waste Segregation

- Determine container needs - what’s being generated and how much?
- 40% of OR RMW waste is from suction canisters!
- Keep packaging out of red bags!

http://mntap.umn.edu/health/91-Canister.htm
Source Reduction Opportunity:
BioElite Red Bags

Bio-Elite red bags:

- Are stronger...
  - Surpasses the ASTM 165 gram dropped dart test at 180 grams
  - Uses a star seal for leak protection
- Weigh 32% less than conventional LDPE bags
- Made with 30% recycled plastic
- Cost less
# BioElite Red Bags

## UC Davis Medical Center 2002 Red Bag Use

(by weight)

<table>
<thead>
<tr>
<th>Bag Size</th>
<th>Weight in Pounds</th>
</tr>
</thead>
<tbody>
<tr>
<td>40&quot; x 48&quot;</td>
<td>50,000</td>
</tr>
<tr>
<td>26&quot; x 64&quot;</td>
<td>15,000</td>
</tr>
<tr>
<td>30&quot; x 46&quot;</td>
<td>7,500</td>
</tr>
<tr>
<td>24&quot; x 24&quot;</td>
<td>5,000</td>
</tr>
</tbody>
</table>

### Diagram

- **Traditional**
- **Bio-Elite**
Before

After

BioElite Red Bags
H2E 10 Steps to Reducing RMW

5. Container placement and signage
Location, Location, Location!
Post Signs
(since you can’t be everywhere at once)

**KNOW WHERE TO THROW!**

**BIOHAZARD RED BAG WASTE**

- Fluid blood
- Blood-saturated items
- Bags and IV tubing containing blood products
- Suction canisters
- Hemovacs
- Chest drainage units
- Hemodialysis products

**THESE DON'T GO in the red bag:**

- Garbage
- Sharps
- Pathology specimens
- Hazardous waste
- IV bags
- Medication

**BIOHAZARD RED BAG WASTE**

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Post Signs
(since you can’t be everywhere at once)

HOSPITAL STAFF USE ONLY

RED BAG WASTE COSTS 13 TIMES MORE THAN REGULAR WASTE

PUT ONLY TRUE REGULATED MEDICAL WASTE IN RED BINS

YES — RED BIN ME (autoclave):
- Blood, blood products, anything soaked or dripping in blood
- Suction canisters with solidified fluid
- Chest drainage sets containing any fluid

YES — REE-DOO BIN ME (incineration):
- Tissues from surgery and autopsies
- Pathology
- Chemotherapy waste (trace)

NO! PUT ME IN REGULAR TRASH!
- IV bags, tubing, foley bags
- Gloves
- Urine soaked waste — including diapers, feces, vomit
- Blood tainted waste (note the distinction between blood soaked and blood tainted waste. A little bit of blood on an item can go into the regular trash).

UNDERSTAND YOUR IMPACT.

Do YOU Know Where To Put Your Waste???

Do NOT put me in a Red Bag!!
Put me in a CLEAR bag.

YES, put me in a Red Bag.

Put me in a RED Bag:
- IV bags
- Tubing
- Non-blood waste such as gloves, oxygen tubing, diapers
- Urine-soaked waste, feces or vomit
- Foley bags
- Packaging and paper gowns
- Blood Tainted waste**

**Note the distinction between blood soaked and blood tainted waste. Blood soaked waste is not blood tainted waste. A little bit of blood can go into the regular trash.

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District of Columbia Hospital Association
H2E 10 Steps to Reducing RMW

5. Container placement and signage

6. Worker Training and Education Plans and Policies
Training - What Can You Do?

- Waste assessments
- Outreach materials
- Formal training programs

✓ New employees - integrate into job description
✓ Communicate goals and program progress
✓ Can departments be accountable for RMW costs?

REMEMBER: Compliance and safety first. Focus on what you can control.
Training is imperative to ensure proper segregation of medical waste.

Employees aren’t the only ones...
SAMPLE QUIZ: Where to throw?

- IV bags are not considered red bag wastes
- Items containing non-infectious body fluids generally not considered red bag waste
- Used food service items ARE NOT red bag wastes
- “Soiled” vs “tainted”
SAMPLE QUIZ: Where to throw?

- Syringes, needles, blades, scalpels, lancets, broken glass, and any other contaminated sharp object should be placed in sharps containers

- Used gloves, masks, and gowns that are not blood soaked are not red bag waste
SAMPLE QUIZ: Where to throw?

- Used paper towels and tissue are not red bag waste.

- Blood containing items capable of being poured or spilled and other items visibly soiled with blood are considered red bag wastes.
H2E 10 Steps to Reducing RMW

5. Container placement and signage

6. Worker Training and Education Plans and Policies

7. Sharps Management

8. Problem Identification and Resolution Plan
H2E 10 Steps to Reducing RMW

9. Waste treatment and waste handling

10. Track progress, report successes, and reward staff!
RMW Reduction Case Study: University Medical Center, Tucson

- Stericycle provides RMW disposal:
  - sharps & red bag waste are autoclaved
  - chemo & pathology waste are incinerated
- May 2004: Initiated Red Bag waste reduction training program:
  - Reduced number of red bins in some areas
  - Stericycle conducted a medical waste audit
  - Posted signs describing proper disposal of red bin waste, yellow bin waste and regular waste
  - Saf-T-Grams sent to staff educating on new program and procedures.

2005 Case Study: University Medical Center, Tucson, AZ
Reusable Sharps Container Program

July 2004: UMC Implemented Biosystems® Reusable Sharps Container Program

- Containers processed at a permitted off-site treatment facility
- Containers opened by a robotic mechanism and emptied for processing
- Containers washed and sanitized and returned to hospital for reuse

2005 Case Study: University Medical Center, Tucson, AZ
Biosystems® is a Service Contract...

- Installed 1,000+ reusable sharp container “lock boxes” throughout the hospital and in satellite clinics
- Conducted comprehensive facility audit to determine proper container size and service frequency
  ✓ Biosystems® service staff on campus 3 days per week

\[
\frac{\$8,600 \text{ per month}}{1000 \text{ containers}} = \$8.60 \text{ container/month} \\
\approx \$0.30 \text{ container/day}
\]
Service Contract Displaces Other Costs

- No longer purchase disposable sharps containers
  - 1-quart containers = 225/year
  - 2-gallon containers = 694/year
  - 3-gallon containers = 11,901/year
  - 7-gallon containers = 1,655/year

Purchase nearly 14,500 per year, costing $89,250!
Service Contract Displaces Other Costs

- Cost of disposing of sharps containers ~$30k/year
- Associated labor costs from managing sharps program in-house
  - Purchasing, warehouse, environmental services, nursing, hazardous waste staff
  - Handling, receiving, inventory, collection, transport, packing, monitoring, distribution

~$15,000
LABOR COST

2005 Case Study: University Medical Center, Tucson, AZ
... and displaces OSHA risk

- Biosystems® fully manages sharps wastes, including handling and moving containers; therefore minimizing OSHA needle stick risk
  - University Medical Center estimated 8 incidents per year, $1,200 each

ESTIMATED ~$12,000 AVOIDED OSHA COSTS

2005 Case Study: University Medical Center, Tucson, AZ
RMW Disposal: The Big Picture

![Graph showing RMW disposal data from Jan-04 to Feb-05. The graph compares Autoclave Waste Generation and Incinerated Waste Generation. A note indicates that a Reusable Sharps Container Program was implemented in 2005.](image)

2005 Case Study: University Medical Center, Tucson, AZ
Reusable Sharps Containers: Achieve ~35% Reduction by Weight

2005 Case Study: University Medical Center, Tucson, AZ
Reusable Sharps Containers: Significantly Affects the Bottom Line

2005 Case Study: University Medical Center, Tucson, AZ
RMW Reduction Case Study: University Medical Center, Tucson

- Autoclave waste was reduced from 41,154 lbs/month to 27,353 lbs/month
- 3.4 lbs/patient day to 2.3 lbs/patient day
- $0.83 per patient day to $0.55 per patient day

CASE STUDY RESULTS:
13,000 POUNDS (~6.5 TONS) DIVERTED AND SAVINGS OF OVER $3,000 PER MONTH!

2005 Case Study: University Medical Center, Tucson, AZ
### Annual Costs: Sharps Mgmt. Comparison

<table>
<thead>
<tr>
<th></th>
<th>DISPOSABLE</th>
<th>REUSABLE</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Purchase</strong></td>
<td>$89k for sharps containers</td>
<td><strong>Service:</strong> $103k ($8.6k/mo) for Biosystems® service</td>
</tr>
<tr>
<td><strong>Disposal</strong></td>
<td>~$36k additional disposal costs (sharps containers as RMW)</td>
<td><strong>Disposal savings:</strong> $36k disposal costs ($3k per month)</td>
</tr>
<tr>
<td><strong>Labor</strong></td>
<td>$15k for managing sharps program</td>
<td><strong>Labor savings:</strong> $15k reduced labor costs</td>
</tr>
<tr>
<td><strong>OSHA</strong></td>
<td>$12k in needle stick related OSHA costs</td>
<td><strong>OSHA savings $12k from reduced risk.</strong></td>
</tr>
</tbody>
</table>

**$152k PROGRAM COST**

**$40k PROGRAM COST**

2005 Case Study: University Medical Center, Tucson, AZ
Reusable Sharps Containers: Implementation Considerations

- **Buy-in:** Significant process change - must get buy-in from nurses, environmental services, purchasing, health and safety, etc.

- **Contracting:** Added service contract - additional costs to one department, but greatly reduces cost in others

- **Containers:**
  - “New Container” transition period *(slightly different shape, size, function)*
  - Variety of mobile or fixed sharps lock boxes.

2005 Case Study: University Medical Center, Tucson, AZ
Take Home Message

1. While we’re talking about RMW minimization, **NEVER** compromise safety and compliance.

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