



Performing Hospital Waste Audits



Why Conduct an Audit?



- Protection of the environment;
- Compliance with regulation and waste minimization goals set by federal, state and local governments;
- Quantify existing waste volumes/ costs;
- Identify waste minimization opportunities/ potential cost savings, program improvements, employee training needs, justify budget needs

Determine What Level of Audit



- Benchmark current waste disposal volumes and costs
- Facility walk through
 - Identify where wastes are generated and how they flow through the facility
 - Identify current practices and compliance with policies and regulations
- Detailed waste stream analysis



Pre-Audit Planning Questions



- Who will be responsible for the waste audit?



- Who will take part and work on the waste audit?



- What will be the task of everybody involved?



- What approvals are necessary?
- Who needs to be notified?

Audit Scope



- Which waste streams will be covered?
- Which departments shall be visited?
- Who must be interviewed?
- Which information and data will be necessary?
- Which information and data shall be available after the waste audit?
- How will the results be evaluated and presented?

Audit Resources



- What kind of equipment will be needed during the waste audit? Is it available or must it be purchased?
- How much time will everybody conducting the waste audit need?
- How much time will departments be impacted for interviews, etc.?

Baseline Waste Audit



- Identify waste types generated.
- Identify quantities of waste generated.
- Identify current waste reduction, reuse and recycle activities.
- Identify current waste disposal costs.
- Analyze for opportunities for waste reduction and cost savings.



“You Cannot Manage What You Cannot Measure”

Lord Kelvin

Analyze Your Waste Streams



- List all categories and subcategories of a specific waste stream
- Determine who is responsible for each waste stream category – who manages it and who pays the bills
- Use waste bills to calculate the amount (weight or volume) and cost of each waste stream

Waste Categories and Sub-categories

Solid Waste	Recycling	Reuse/Donation	RMW	Pharmaceuticals	HazWaste	Recycled HW
Solid Waste	Cardboard	Linen	General Infectious	Trace Chemo*	D001-Alcohol	Computers / electronics
C&D*	Paper, mixed	Furniture	Pathological	Bulk Chemo	D001-Xylene	Fluorescent lamps *
	Paper, shredded	Medical Equipment	Sharps	Pharmaceuti. - RCRA*	D002-Corrosive	X-ray film-Silver
	Newspaper	Medical Supplies★	Anatomical	Pharm - non-haz	D003-Reactive	Oil (cooking)
	Boxboard	Food donation			D009-Mercury	Oil (motor)
	Plastic, #1PET	Ice packs / coolers			D004-43 Toxic	Alcohol Recycling
	Plastic, #2 HDPE	Foam peanuts			D-Characteristic	Xylene Recycling
	Plastic, #4 Shrink wrap	Sharps containers«			F-Listed	Formalin Recycling
	Plastic, #5 polypropylene				K-Listed	Paint Recycling
	Plastic, #6 PS				P-Listed	
	Plastic, mixed				P-Listed	
	Plastic, mixed				U-Listed	
	Glass, clear				Pharmaceuti. - RCRA*'	
	Glass, colored					
	Glass, mixed					
	Steel cans					
	Aluminum cans	Transparencies				
	Mixed Metals	Ink jet cartridges				
	Food waste (composting)	Toner cartridges				
	Pallets	Printer ribbons				
	Wood	Landscape (composting)				
		C&D debris ★				

Benchmarking Data



- Data sources:

- Invoices
- Manifests
- Haulers
- Contracts
- Purchasing

- Challenges:

- Data housed in multiple departments
- Incomplete data /lack of transparent billing
 - May not have volumes
 - Lump sum billing
 - May need to estimate data



Assess Your Fees /Service Levels



- Do you understand your fees?
 - How are you charged? Per pound? Per container/tub? Per pick up?



- What is your pick up frequency?

- What are your container sizes?



- Are your containers full?

- How are each of your waste treated?

- incineration, autoclave, landfill, recycling, HW incineration



Facility Walk Through



- General observations
 - Observation of container placement and content , signage, compliance by staff
 - Best management practices
- Interview staff
 - Discussion of waste practices
 - Knowledge of waste procedures, training received
 - Concerns, recommendations for improvements

Locations to Visit/Observe



- Environmental Services
 - MSW compactor areas, RMW storage, HW room, Recycling areas
- Material Management
 - Purchasing, Receiving Dock, Storeroom(s)
- Facilities/maintenance
 - Power plant, shops, maintenance
- Safety
 - HazMat storage areas, satellite accumulation
- OR/Surgical Services
- Patient Care Floors
- ICU/CCU areas
- Radiology
- Laboratory
- Pharmacy
 - Receiving area, waste collection areas, satellite accumulation areas
- Kitchen/food service areas:
 - Food prep, patient tray lines, waste collection areas, dining room
- Administrative Areas

Departmental Analysis



- Document the services carried out by the department
 - types of services, # staff , # beds, # treatment days, etc.
- Identify types of waste generated in the department.
- Observe how the different wastes are segregated and collected.
 - Query staff on waste practices, training received
- Identify equipment (containers, signs) used for waste management and disposal.
 - Observe container contents where feasible.
- Commend staff on good waste management practices and seek recommendations for program improvements.

Conducting a Detailed Waste Stream Analysis





Waste Stream Analysis Prep



- Establish the time period of the analysis (ex: 1 week)
- Identify the waste streams which will be surveyed
- Identify the sample areas (which departments)
- Acquire the needed equipment (e.g. scale, containers, bags, etc.)
- Establish waste collection points
- Inform the housekeeping staff about the temporary changes to collection in the sample areas



Waste Stream Analysis

- Collect the waste from the sample areas and transport to a predetermined storage point, separate from the normal storage places.
- Utilize proper PPE.
- Measure the different waste streams by volume and by weight, or percentage composition (once per 24 hours)
- Record /document data (quantitative, photos)



- Gather and include background metrics of the sample areas (e.g. patients treated per day, number of meals prepared, etc.)

Audit Results



- Summarize waste volumes, cost data
 - Compare results with known industry data
- Summarize observations
- Make and prioritize recommendations
 - Waste minimization strategies for specific areas of the facility
 - Practices/policy improvements
 - Budgetary requirements

Moving Forward



- Track waste minimization efforts and compare the results with the waste data gathered during the audit
- Document results and look for opportunities for continuous improvement
- Evaluate the waste minimization process to document success
- Institute policy directives incorporating improved waste minimization processes
- Plan new waste minimization pilot projects for further waste reduction



Questions?

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