

The background features a large, semi-transparent sphere on the left side, with a green gradient on the right. Two overlapping rectangular boxes, one blue and one green, are positioned behind the main title text.

Pharmaceutical Waste Management

Designing a Sustainable
Program

Objectives

- Assignment of Accountability
- Build the Management Team
- Establish BMP Benchmarks
- Perform Gap Analysis to Compliance
- Decide on a management program
- Develop a Policy & Procedure

Assignment of Accountability

- Pharmacy
- Nursing
- EH&S
- Security
- Housekeeping
- Materials Management
- Administration

Best Management Practice

- RCRA Hazardous Waste
- NIOSH Hazardous Drugs
 - ASHP List & Criteria
- OSHA Hazardous Drugs
 - Carcinogens
 - Endocrine Disruptors
- USDOT Hazardous Materials
- DOH Drugs Devices & Cosm.
- DEA Scheduled Drugs

Gap Analysis

- Where are we now?
 - Regular trash (landfill)
 - Sewering down the drain
 - Autoclaving (RMW)
- Where do we want to be?
 - Regulatory Compliance
 - Employee Safety
 - Environmental Stewardship

Identifying a Program

- Compliance
- Efficiency
- Cost Effective
- Maintenance Considerations
 - Information
 - Supply inventory (labels, containers)
 - Training
 - Oversight
- Sustainable
 - Future Regulations
 - Ease of Administration

Identifying a Program

This presentation will compare three program models:

- Point of Generation Segregation
- Centralized Segregation
- Single-Stream Management

Point of Generation Segregation

Pharmacy identifies and labels pharmaceuticals and they are segregated by unit staff (nurses and practitioners) at the point of generation into appropriate containers

Point of Generation Segregation

- Formulary Characterization
- Labeling System
 - Manual
 - Electronic
- Label items
 - Upon receipt
 - Upon preparation/dispensing
- Nurses trained on segregation
- Labels are matched to specific containers
- Full containers are moved to storage
- Removed from site by vendor on scheduled runs

Point of Generation Segregation

- Considerations
 - Formulary and database maintenance
 - Labor intensive (label/re-label)
 - Multiple containers (space, cost)
 - Training considerations
 - Less expense in disposal cost
 - Increased operating expenses & resources
 - Potential for non-compliance:
 - Segregation errors
 - Rejected waste
 - Regulatory fines

Point of Generation Segregation

Costs

Formulary Analysis	\$ 5,000
Subscription	3,000/yr
Internal costs (labeling, labor, equipment, materials, maintenance, training, multiple container types)	??
Disposal (1,000 containers)	
Haz (20% @ \$175)	\$ 35,000
Non-Haz (80% @ \$60)	<u>\$ 48,000</u>
Disposal Costs	\$ 86,000
Total	\$100,000 +

Centralized Segregation

Pharmacy identifies and labels pharmaceuticals and they are segregated by vendor or trained staff at a central location within the facility

Centralized Segregation

- Formulary Characterization
- Labeling System
 - Manual
 - Electronic
- Label items
 - Upon receipt
 - Upon preparation/dispensing
- Pharmaceuticals collected in one container (compatible items)
- Full containers moved to segregation area
- Sorted on-site & Repackaged
- Moved to storage location
- Removed from site by vendor during scheduled runs

Centralized Segregation

- Considerations
 - Formulary and database maintenance
 - Manually intense labeling/re-labeling
 - Single container
 - Improved compliance
 - Disposal Costs the same as PGS
 - Labor costs for sorting and re-packing
 - Risk of exposure
 - Aerosolization
 - Infectious materials
 - Space considerations (need secure work area)
 - More expensive due to labor & supplies

Centralized Segregation

Costs

Formulary Analysis	\$ 5,000
Maintenance Subscription	3,000/yr
Internal costs (labeling, labor, equipment, materials, maintenance, training)	??
Labor to segregate (1,000 cont at 20 min, 335 hours @ \$45/hr)	\$ 15,000
Disposal (1,000 cont)	
Haz (20% @ \$175)	\$ 35,000
Non-Haz (80% @ \$60)	<u>\$ 48,000</u>
Disposal Costs	\$ 86,000
Total Cost	\$120,000 +

Single-Stream Management

All pharmaceuticals are collected in one container and managed as a single waste stream. Chemically incompatible items and controlled substances are sent back to pharmacy and managed separately. (less than 0.05% of waste stream)

Single-Stream Management

- Limited Formulary characterization
- Minimal labeling or re-labeling
- One container system (space & cost)
- Training is simple in-service
- Compliance is dramatically improved
- Less commitment of resources
- Ease of tracking and implementing
- Sustainable program (future regulations may require management of ALL pharmaceuticals)

Single-Stream Management

- Considerations
 - Reduced Formulary maintenance
 - Disposal costs increased
 - Decreased on-site liability
 - Ease of implementation
 - Simplified training
 - Program oversight uncomplicated
 - Sustainable (EPA to recommend ALL pharmaceuticals as universal waste by 2010/2012)

Single-Stream Management

Costs

Formulary Analysis	\$ 0
Formulary Subscription	0
Internal costs (labeling, labor, equipment, materials, maintenance, training)	minimal
Labor to segregate	0
Haz/non-Haz (100% @ \$75)	<u>75,000</u>
Total	\$ 75,000

Program Comparison

	POGS	CS	SSM
Full Formulary Analysis	√	√	Incompatibles
Formulary Maintenance	√	√	Limited
Labeling @ Pharmacy	√	√	
Multiple Containers @ Point of Care	√		
Contracted Labor		√	
Additional Space Requirements		√	
Additional Staff Training	√	√	
Exposure Considerations		√	
Non-Conforming Waste (1 to 10 Scale)	7	1	1
Compliance Risk (1 to 10 Scale)	8	1	1
Cost (based on 1,000 containers/yr)	\$100,000 Plus	\$120,000 Plus	\$75,000 NET



Questions?