



THE HEALTH CARE IMPROVEMENT FOUNDATION
Building Partnerships For Better Health Care

ST. MARY MEDICAL CENTER

Protecting the Patient and the Environment through Effective Medical Waste Management

Background: St. Mary Medical Center located in Bucks County, Pennsylvania is a 366-bed acute care facility. With a staff of more than 500 physicians, 2400 employees, and 700 volunteers St. Mary Medical Center is the most comprehensive medical center in Bucks County. The hospital provides care for 21,000 inpatients, 50,000 emergency patients, and 192,000 outpatients each year.

In 2007, the Director of Environmental Services noticed the amount of infectious waste was increasing, thus increasing overall costs for the hospital. The Director of Environmental Services felt that much of this increase had to do with improper disposal by hospital staff – that is, the staff was placing non-infectious waste into the infectious waste stream.

Objective: To reduce the amount of infectious waste by identifying inappropriate items being placed in the infectious waste receptacles. Proper segregation of this waste would reduce the infectious waste disposal costs to the hospital. Reducing contact with infectious waste provides a safer work environment for staff and patients, an additional benefit to proper waste disposal.

Original Process: There were no deliberate attempts to segregate non-infectious waste from the infectious waste stream. Some waste streams are unavoidable, such as bulk blood and body fluids that are generated in the operating suites and inpatient units.

Plan of Action: A waste reduction audit was conducted and, as a result, St. Mary Medical Center decided to focus on reducing the medical waste stream through source reduction. Researching alternatives to the management of the infectious waste stream led the hospital to train employees. In other cases, the placement of red infectious waste receptacles was changed, and the red receptacles were removed in two patient units.

The Environmental Services Department introduced the waste management plan in the OR suites in 2007. This plan included education, mandatory in-service training, and auditing the type and volume of waste generated by each OR. The OR was generating approximately 359 pounds of medical waste per day. Following training, in-services, and redesign of the location of red bag waste receptacles, the OR reduced medical waste to 90 pounds per day. On a monthly basis, EVS weighs the red bag waste in the OR. Two patient units were identified, and the decision was made to remove all regulated medical waste receptacles from the patient rooms. If a red bag was needed in a patient room, nursing staff would bring a red bag into the patient room, dispose of the infectious waste, then place the infectious waste bag in the soil utility room. The result was a 50% decrease in infectious waste on these two patient units.

Economics:

**St. Mary Medical Center Baseline Survey
2007**

Waste Management Category	# Pounds/Year (baseline)	% of Total Waste (baseline)	Annual Cost/(Rev.) (baseline)
Municipal Solid Waste-Operations	185,000	11%	\$95,976
Municipal Solid Waste-Construction	389,760	23%	\$24,240
Recycle/Reuse-operations	202,040	12%	\$ 5,760
Confidential Waste	202,000	12%	\$ 61,859
Regulated Medical Waste	579,252	35%	\$144,813
Sharps	102,552	6%	\$52,559
Hazardous Waste	3355	Less than 1%	\$ 4,675
TOTAL	1,663,959	100%	\$389,882

**St. Mary Medical Center Survey
2008**

Waste Management Category	# Pounds/Year (baseline)	% of Total Waste (baseline)	Annual Cost/(Rev.) (baseline)
Municipal Solid Waste-Operations	2,050,560	52%	\$106,722
Municipal Solid Waste-Construction	721,340	19%	\$45,092
Recycle/Reuse-operations	248,560	7%	\$ 4,480
Confidential Waste	432,000	11%	\$ 50,400
Regulated Medical Waste	426,529	11%	\$106,632
Sharps	No data	No data	No data
Hazardous Waste	No data	No data	No data
TOTAL	3,878,989	100%	\$313,326

Red Bags	2007 Cost	2008 Cost	Cost Savings
20 x 24	\$1,286.00	\$1,981.00	-\$695.00
30 x 36	\$15,768.00	\$9,777.00	\$5,991.00
40 x 48	\$15,377.00	\$8,809.58	\$6,568
		Total Cost Savings:	\$11,864.00

Benefits: Within a year of implementation of the waste management plan, the amount of medical waste was reduced by 36% from 579,252 pounds in 2007 to 426,529 pounds in 2008. This reduction was maintained throughout calendar year 2008, leading to a 35% reduction in total financial cost for regulated medical waste. St. Mary Medical Center saved \$50,045.00 in disposal cost and \$11,864.00 in the reduction of red bag supplies. This effective waste management reduces health risks, saves money and protects the environment.

Other Environmental Programs:

- St. Mary Medical Center has partnered with Ascent Healthcare Solutions to reprocess various instruments and tools. In 2007, St. Mary Medical Center reprocessed 4,480 pounds of instruments, which saved the hospital \$1,344.00. In 2008, there were 5,525 pounds of instruments that were reprocessed, which saved the hospital \$1,657.00.
- In 2008, St. Mary Medical Center added a rooftop garden. This rooftop garden cools the building, reduces absorption of heat, extends roof life by protecting it from weather conditions, reduces air pollution, reduces storm water runoff, provides a relaxing retreat, and enhances the aesthetics of the property.
- St. Mary introduced PVC free IV bags. With a standard flexible I.V. container, an external overwrap is used as a moisture barrier. St. Mary Medical Center switched to a large-volume flexible I.V. container that requires no overwrap. The container results in approximately 40 percent to 60 percent less waste than other flexible I.V. containers, helping reduce hospitals' environmental impact and disposal fees. The container is made from PVC- and DEHP-free materials that provide the thermal stability, moisture-barrier properties and inertness required for I.V. medications.