

Hospital Circuit Rider

COMPANY BACKGROUND



The hospital circuit rider internship originated from the Hospitals for a Healthy Environment (H2E) initiative, which is now integrated into Practice Greenhealth. Practice Greenhealth is the nation's only membership association devoted to environmentally responsible healthcare. It is a nonprofit organization founded on the principles of positive environmental stewardship and best practices by organizations in the healthcare community. Practice Greenhealth encourages mercury elimination, waste reduction, and environmentally sound operational practices.



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PROJECT BACKGROUND

The circuit rider internship is in its third year and is funded by a grant from the Environmental Protection Agency (EPA) Region VII. The intern visits hospitals throughout Iowa and Nebraska to identify mercury, strategize new energy efficiency methods, and provide waste reduction and management techniques. A similar project is also carried out through the Kansas State University Pollution Prevention Institute to reach hospitals in Kansas and Missouri.

INCENTIVES TO CHANGE

Mercury is listed as one of 12 priority chemicals by the EPA's Persistent, Bioaccumulative, and Toxic (PBT) Program. Mercury neonatal exposure is linked to serious birth defects. All hospitals are encouraged to eliminate mercury from their facilities due to its toxic properties.

Hospitals are among the nation's most energy-intensive sectors, spending more than eight million dollars on energy each year. The EPA reports that each dollar saved by a healthcare facility results in the equivalent of \$20 of additional revenue. Greenhouse gas emissions from burning fossil fuels contribute to dangerous environmental and health consequences.

The proper segregation and reduction of regulated medical waste protects against infectious diseases, minimizes disposal costs, and reduces environmental impacts.

RESULTS

Mercury Reduction: Mercury audits were performed at nine hospitals throughout Iowa and Nebraska. The audits identified a total of 24.63 pounds of mercury. Hospitals were encouraged to remove this mercury, and to create a proper emergency spill procedure for mercury that must remain in the facility, such as within the fluorescent lighting.

Energy Star Applications: Hospitals use many standard appliances, such as refrigerators and televisions, which can be purchased as Energy Star appliances. The Energy Star label indicates an appliance uses 15 percent to 60 percent less energy than its standard counterpart. The Energy Star Portfolio Manager was created for each hospital to manage its energy and water consumption, in an effort to track changes as various projects are implemented.

Lighting Upgrades: Several opportunities for lighting upgrades exist within hospitals. Fluorescent lighting fixtures can be converted from magnetic T12 ballasts to electronic T8 ballasts and 25W T8 bulbs can replace 32W

T12 bulbs. Decorative lighting that uses 75W halogen or incandescent bulbs can be switched to 9W compact fluorescent lights (CFL) to reduce energy consumption. Exit signs that are still using two incandescent bulbs at 36W per sign should be replaced with 5W light emitting diode (LED) signs. Occupancy sensors, used to turn off lights when necessary, can be placed in rooms that are frequently unoccupied or contain adequate natural lighting.

Miscellaneous Energy Projects: Other energy-saving options were presented specific to the facility. These included computer energy saving modes, Vending miser technology, rooftop reflection upgrades and window tinting. The computer energy savings modes include sleep and standby modes, saving a great deal of energy for no upfront cost. Vending miser technology uses motion detection to determine if a vending machine can be turned off while not in use. Rooftop reflection upgrades would decrease the solar heating effects during the summer and increase insulation during the winter. Window tinting decreases solar heating, provides additional insulation, and improves creature comfort in the facility.

Waste Reduction: Three hospitals were audited for their waste consumption. Regulated medical waste was inspected for proper segregation, and paper towel consumption was monitored. Infectious waste is labeled as RMW and must be placed in the appropriate bags. This material is generally incinerated to disinfect and therefore costs much more for disposal than non-infectious waste. If waste is not properly segregated, hospitals may be paying too much for waste disposal. Paper towel waste can be reduced by installing electric hand dryers.



AIR POLLUTANTS DIVERTED IN TONS

Total for all sectors	
SO2	3.86
CO	0.92
NOx	1.85
VOC	0.15
PM	0.17

GREEN HOUSE GASES DIVERTED IN TONS (CO2 Equivalent)

Total for all sectors	
CO2	720.05
CH4	63.42
N2O	0.47
CFC	8.84

PROJECT	ANNUAL COST SAVINGS	ENVIRONMENTAL RESULTS	STATUS
MERCURY REDUCTION	N/A	24.52 POUNDS	RECOMMENDED
ENERGY STAR APPLICATIONS	\$7,779	349,467 KWH	RECOMMENDED
LIGHTING UPGRADES	\$29,016	448,445 KWH	RECOMMENDED
MISCELLANEOUS ENERGY PROJECTS	\$26,346	579,283 KWH	RECOMMENDED
WASTE REDUCTION	\$7,079	3.47 TONS	RECOMMENDED