Hospital
Pollution Prevention

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Sept. 13, 2007
or
How I Saved My Hospital a Bundle of Money and Saved the Planet before 10 AM
Hospital Waste Streams – It Makes a Village

General
- Water usage
- Energy, HVAC
- Disposables
- Cleaning supplies

Business
- Supply chain
- Office
- Groundskeeping

Restaurant, Laundry
- Cafeteria
- Linens

Industry
- Safety
- Hazardous substances
- Sharps
- Transportation/fuel
- Lab chemicals

Unique
- Medical and infectious
- Drugs
- Patient care
Where do I start?

Analyze your waste streams

- What will have the biggest impact?
- What’s easiest to implement?
- What will affect compliance?
The low-hanging fruit: Recycling

- Find a company to recycle your waste at the North Carolina Recycling Markets Directory: www.p2pays.org/rbac/recycling_markets.html

- Office paper, cardboard
- Cans, bottles, plastic bottles
- Plastics - Blue sterile wrap, plastic film, other
- Construction waste: carpet, metals, gypsum, wood, concrete, pavers

- Compost food waste - groundskeeping
- X-ray film and fixer
- Electronic waste
- Batteries

- Don’t forget to BUY RECYCLED – keep the recycling markets strong!
Simple - Reduce Waste Generated

- Washable dishes and utensils in cafeteria and rooms
- Eliminate plastic trash liners in offices
- Minimize non-regulated waste in red bags
- Employee discount for using own mug, cup
- Reusable (linen) surgical scrubs, drapes, diapers, bed pads, etc.
- Autoclavable plastic bed pans
- Nontoxic x-ray developer
Reuse

- Reuse linens in cleaning
- Reuse packaging for mailings
- Eliminate disposables – ex: Stainless trays and instruments in surgery
- Replace foam mattresses with waterproof, permanent mattresses
- Carpet squares – replace only worn areas
- Distill solvents (xylene) for reuse
Remember Hazards: Mercury

- Our Mercury Webpage: www.p2pays.org/mercury/
- Mercury Topic Hub: http://wrrc.p2pays.org/p2rx/

- Thermometers, thermostats, sphygomanometers
- Esophageal Dilators (Bougies) and Feeding Tubes
- Gastro/Eosophageal Tubes Containing Mercury
- Barometers in Respiratory Therapy

- Intraocular Pressure Devices
- B-5 Fixative
- Manage fluorescent bulbs - universal waste
- Mercury-Free Cleaning Products
Energy & Water Conservation

- Low flow shower heads, toilets, aerators, HVAC, generators, ice machines, leaks
- Xeriscaping, irrigation methods
- Reuse gray water? Capture rain?

- Get an energy audit!
- State Energy Office – trainings, loans: [www.energync.net](http://www.energync.net)
- Lighting – Maximize natural; install motion sensors, check ballasts, use fluorescent bulbs and recycle properly
- HVAC – efficient? Proper size? Temp? Intake?
- Other appliances – ice makers, light in soda machines
- How do you pay for power? Peak shaving
Purchasing

- Buy recycled content
- Buy in bulk
- Request reduced or reusable containers, pallets
- Buy from local sources when possible
- Consider supporting local agriculture and healthy eating – The Farm to Hospital Program
  [http://www.foodsecurity.org/F2H_Brochure.pdf](http://www.foodsecurity.org/F2H_Brochure.pdf)
- How are purchasing decisions made?
  - Upfront cost only, or life-cycle cost considered? (Cost to use, cost of disposal, cost of transportation)
Look at Source

- Where does our energy come from?
  - Sustainable energy? ([www.ncgreenpower.org](http://www.ncgreenpower.org))
- Where do our materials and supplies come from? Were they made sustainably?
  - Distance transported; green suppliers; recycled content
- Where does our food come from?
  - UEPI Farm to Hospital program
  - Where does our waste food go – shelters, composting
- How do the choices you make affect the environment?
- Are you making the right choices?
Education = Waste Saved

- Print/generate only what is necessary
- Put waste in correct container
- Look at operating expenses as well as initial cost = long-term savings
- Train workers at all levels – how does my job impact the environment? What choices am I making?
  - Did I turn off the light or leave the water running?
How do I get a handle on it all?

- Individual Programs by Section – Compliance focused

or

- Hospital Waste Manager - Recycling, facility-wide programs

or

- Environmental Management System
  - ISO 14001
  - Facility-wide system integrated into business
  - Beyond compliance and continuous improvement
  - All employees are part of environmental program
What is an EMS?

- A tool to improve environmental performance
- Based on Plan-Do-Check-Act Model (PDCA)
- Continual Improvement of system
- Addresses immediate and long-term impact of an organization’s products, services and processes on the environment
- ISO 14001 - International standard; can become certified by third party auditor
Why Implement an EMS?

- Compliance and reporting requirements
- Moving beyond compliance
- Vehicle for positive change
  - improved employee morale
  - enhanced public image
- Employee turnover
- Environmental management just one of many responsibilities
- System to unify multiple environmental programs under one umbrella!
Getting started - we can help

- DPPEA - Free and non-regulatory Technical Assistance – waste, energy, water, recycling and haz help

- DENR Environmental Stewardship Initiative
  - Free training and assistance with developing an EMS
  - Assigned coach
  - Other benefits
ESI Overview

- [www.p2pays.org/esi](http://www.p2pays.org/esi)
- Voluntary program
- Environmental *improvement* & *recognition* program
- Promotes & encourages superior environmental performance
- Oversight by DENR Secretary
- Three levels of membership
  - Partner
  - Rising Steward
  - Steward
Membership Status

- 81 Environmental Partners
- 13 Rising Environmental Stewards
- 6 Environmental Stewards
  - Novozymes North America Inc.
  - ASMO North Carolina Inc.
  - City of Gastonia Long Creek Resource Recovery Facility
  - Corning Inc. - Wilmington Optical Fiber Facility
  - Naval Air Depot, Cherry Point
  - GKN Driveline Precision Forming, Sanford Plant
Members Successes

- City of Gastonia Wastewater Treatment Plant reduced noncompliance from a max. of 45 events in 1999 to zero in 2004.
- Smithfield Foods, Wilson: saved over $200,000 in 2005 due to composting, source reduction and water conservation.
- The NC Zoo has installed a biodiesel processing unit to recycle its fryer grease into fuel for the zoo trams and other vehicles.
- ESI Member Cost Savings: $12,721,772 (2005)
Hospital Case Studies

- Itasca Medical Center in MN saved >$16,200 per year in purchasing and solid waste costs with an integrated waste management system.
- Thomas Jefferson Univ. Hospital in Philadelphia saves $150,000/year through recycling.
- Fletcher Allen Healthcare in Vermont composts 90% of its food scraps and steam table leftovers for a savings of $1,400 annually.
- Norwood Hospital in Boston reduced water usage >14.6 million gallons annually (29%), saving >$120,000/year with a $58,000 investment.
Keeping it in Perspective

Our first reconnaissance mission to the Blue Planet indicates that the rectangular creatures in Photo #1 are the dominant life forms, and feed primarily on the creatures in Photo #2.
How to Begin

- Pollution Prevention (P2) Assistance: http://www.p2pays.org/ for general info and online library of 40,000+ documents or
- Hospitals for a Healthy Environment - www.h2e-online.org/
How to Join ESI

- ESI Program:  

  Angela Hall, lead ESI coach
  919-715-6506 or
  [Angela.Hall@ncmail.net](mailto:Angela.Hall@ncmail.net)
Contact Info

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- We look forward to hearing from you!