



# BUSINESS CASE FOR GREENING HEALTH CARE

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Peter Orris, MD, MPH, FACP, FACOEM

Professor and Chief of Service

Occupational & Environmental Medicine



UNIVERSITY OF ILLINOIS  
Hospital & Health Sciences System  
Changing medicine. For good.

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## Environmental Impacts of Healthcare Practices

Dioxin & Incineration: In 1995, medical waste incinerators were the largest source of dioxin and were responsible for 10% of mercury emissions.

Pharmaceutical Waste: At least 250 million pounds of pharmaceutical waste is generated annually from hospitals and long-term care centers.

Indoor Air Quality: Poor air quality has been identified as the most frequent cause of work-related asthma in healthcare workers.

Energy: Healthcare is the second most energy intensive sector in commercial buildings.



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“Climate change is the biggest global health threat of 21<sup>st</sup> century.”

“The impacts will be felt all around the world – and not just in some distant future but in our lifetimes and those of our children.”

The Lancet



## Body Burden Profile: Pollution in Newborns

A benchmark investigation of industrial chemicals, pollutants, and pesticides in human umbilical cord blood.



**287 chemicals detected**

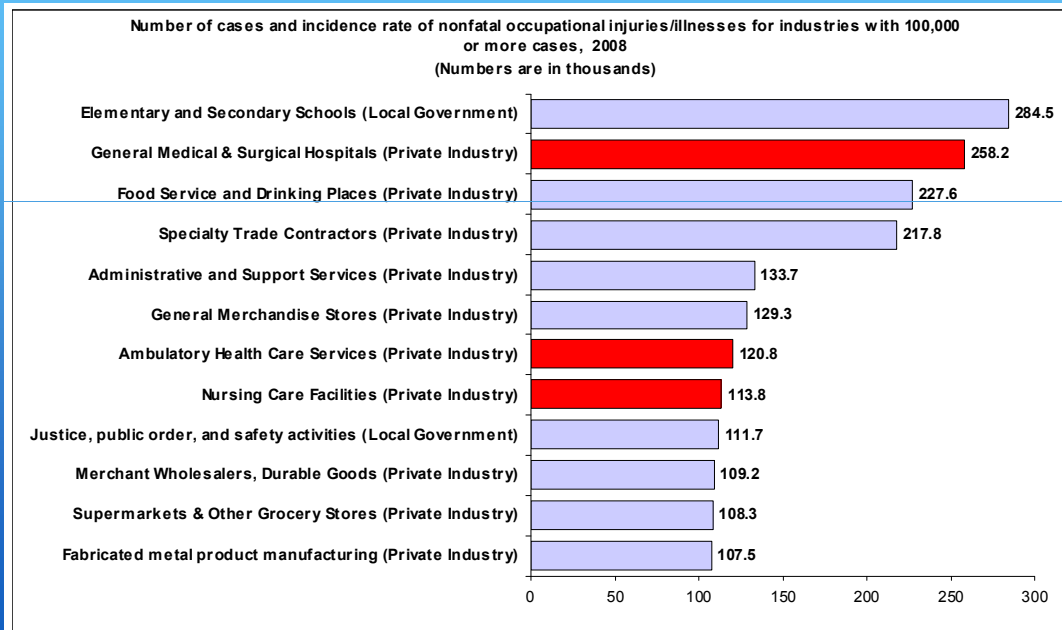
**180 - known or suspect carcinogens**

**217 - neurotoxins**

**208 - linked to birth defects.**

# Worker Impacts of Healthcare Practices

Of the 14 industries with the highest numbers of occupational injuries/illnesses, three are in health care. Hospitals have the greatest number of occupational injuries/illnesses in the private industry sector.



Bureau of Labor Statistics, 2008 data (most current available)

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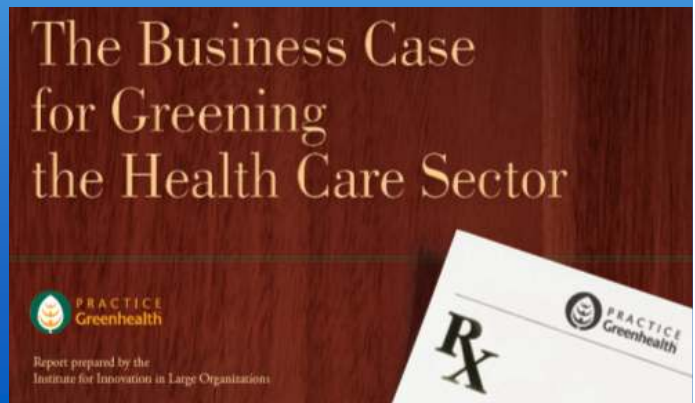
# Design and Operate Healthier and Safer Facilities for Patients and Employees



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# THE OLD RATIONALE

- Pollution and greenhouse gas emissions have major impacts on the public's health
- Reducing such pollution reduces the occurrence of human disease
- Thereby saving money for the health care system and society as a whole



# THE NEW UNDERSTANDING

Most  
Interventions to improve sustainability  
within health care institutions begin to  
save money for those institutions  
within

**1 – 5 years.**



# Purchase Safer Products and Materials

## Case Study: Kaiser Permanente

- Switched to T-8 light bulbs containing 72% less mercury, 20% less energy, and 33% less universal hazardous waste and **saving \$6.9 million per year**
- Switched surgical lights LED bulbs, reducing 33% in energy and 34% in heat emission- **saving \$109,000 annually**
- New defibrillators used 33% less packing material and were non-bleached and lead free which reduced 33% natural resource consumption and toxin reduction- **saving \$112,000 annually**



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# Strategic Energy Master Plan

## Case Study: Partners Healthcare

- Lowering energy consumption increases operating revenue without expansion of services or addition of new clinical programs
- **\$1 in annual energy cost equals an increase of \$33 in annual revenue**



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# Strategic Energy Master Plan

## Case Study: Gunderson Lutheran Hospital

Phase I: Retrocommissioning & other operational improvements/  
**\$114,000 annual savings**

Phase II: Capital Improvements  
Relamping all buildings = **6 year payback**

Central Utility Plant renovations –  
**800,000 kWh annual savings**

20% energy-use reduction for La Crosse campus = **\$800,000 annual savings**



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# Operational Improvements

## Case Study: Ottawa Hospital

### ■ HVAC SYSTEM:

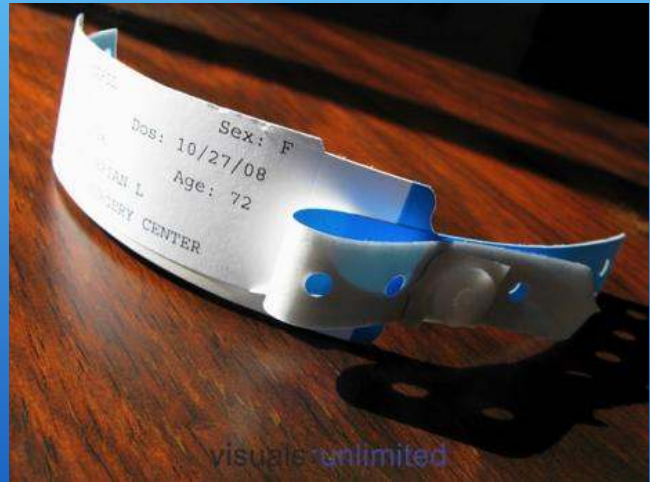
- Conversion of city water cooled refrigeration / cooling compressors and condensers to chilled water.
- Conversion of water cooled air compressors to air cooled compressors
- HVAC automation project reduced the flow to selected zones as per occupancy
- Flash steam heat recovery in 1 campus which reduced the water consumption in addition to recovering lost steam
- **42,267,500 gallons of water saved per year, \$330,000.00 (CAD) in annual savings**



# Support the Use of Safer Chemicals and Green Chemistry

## Case Study: Kaiser Permanente

- Replaced PVC ID bands with chlorine free plastic (61,000 square ft of PVC not used), saving **\$25,000/yr**
- Sustainable fabrics eliminated toxins, saving **\$1 million a year**



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## Purchase Safer Products and Materials: Medical Device Remanufacturing/Reprocessing

### Case Study: HealthTrust Purchasing Group

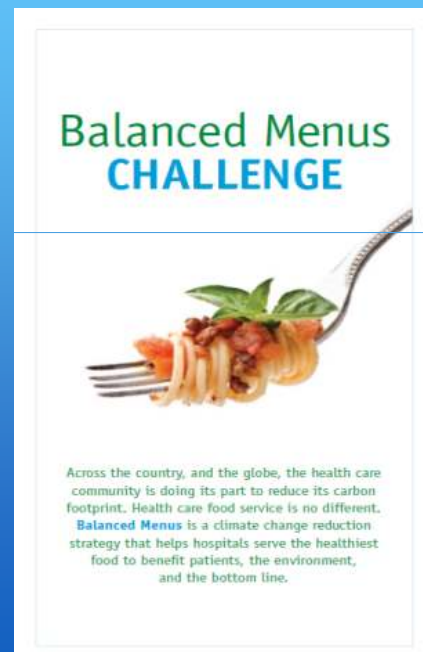
- Includes surgical devices, EP catheters, compression sleeves, pulse oximetry, open and unused devices
- Total Environmental Savings in 2009: 307, 875 pounds (19 tons)
- **Total Financial Savings: \$28,854,000**

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# Promote Nutritious, Sustainable Food

## Case Study: Fletcher Allen Hospital

- Patient meals focused on whole grains, fruits and vegetables, healthy fats, and low fat dairy, antibiotic free meat, and locally grown foods
- Reduced costs by reduced packaging, and buying bulk dressings and condiments instead of packets- **saving \$36,000 per year**

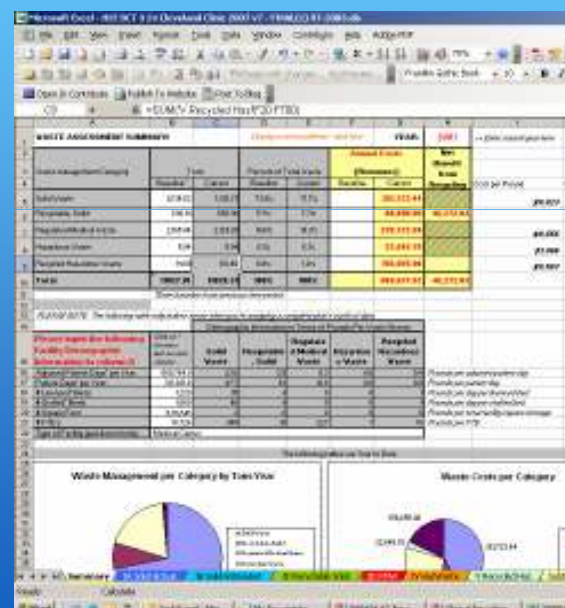


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# Minimize Waste and Emissions; Decrease/Eliminate Incineration

## Case Study: Cleveland Clinic

- Total of 12 Campuses
- Main Campus- 12 waste streams
  - 26 recycling streams
  - 12 depts. reporting
  - More than 20 vendors
- PGH Waste Tracking tool in place at all hospitals with month-by-month recycling and waste data
- **In 2008 saved a total of \$100,000**



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The cumulative impact of all the users is **over \$1,500,000** in vehicle maintenance and repair

Over **184,000** gallons of gas have been saved

Reduction of over **3,000,000** pounds of CO2 emissions

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## Resources

- Ripple database
  - [www.healthdesign.org](http://www.healthdesign.org)
- Green Guide for Health Care
  - [www.gghc.org](http://www.gghc.org)
- PGH (EPP database)
  - [www.practicegreenhealth.org](http://www.practicegreenhealth.org)
- Pharos
  - [www.healthybuilding.net](http://www.healthybuilding.net)

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# Acknowledgements

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