

Correlating Energy Projects to Environmental and Health Benefits

Reducing Energy Costs in Maryland's Hospitals
October 10, 2013

Laura Anderko PhD RN, Robert and Kathleen Scanlon Endowed Chair in
Values Based Health Care, Georgetown University
Board, Alliance of Nurses for Healthy Environments
White House Champion of Change for Climate Change and Public Health

Healthcare is the second most
energy intensive sector in
commercial buildings





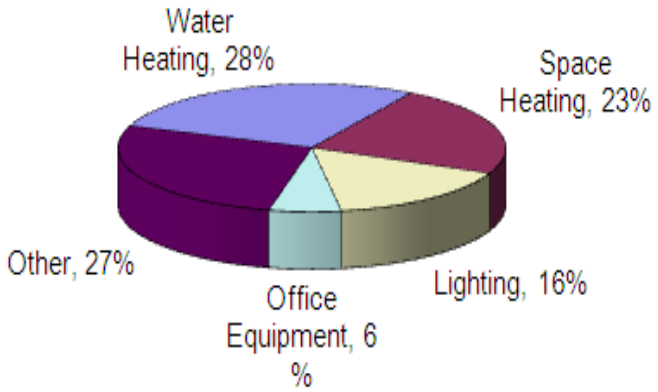
Healthcare Sector

Spends \$8.5 billion on energy each year

Use of conventional energy adds over \$600 million in increased health care costs (e.g., increased asthma, ER visits)

Energy consumption by the healthcare sector

Health Care Buildings end usage (U.S. Average)



Key benefits of reducing energy consumption in hospitals

1. Improved profitability
2. Reduced impact of volatile energy costs
3. Lower operations and maintenance costs
4. Improved environmental performance
5. Reduced carbon footprint, greenhouse gases
6. Healthier healing and work environment
7. Healthier communities (through improved air quality)

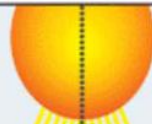
Source: U.S. Department of Energy, 2011

Energy Consumption, Emissions, and Climate Change



NATURAL GREENHOUSE EFFECT

The greenhouse effect is a natural warming process. Carbon dioxide (CO₂) and certain other gases are always present in the atmosphere. These gases create a warming effect that has some similarity to the warming inside a greenhouse, hence the name "greenhouse effect."



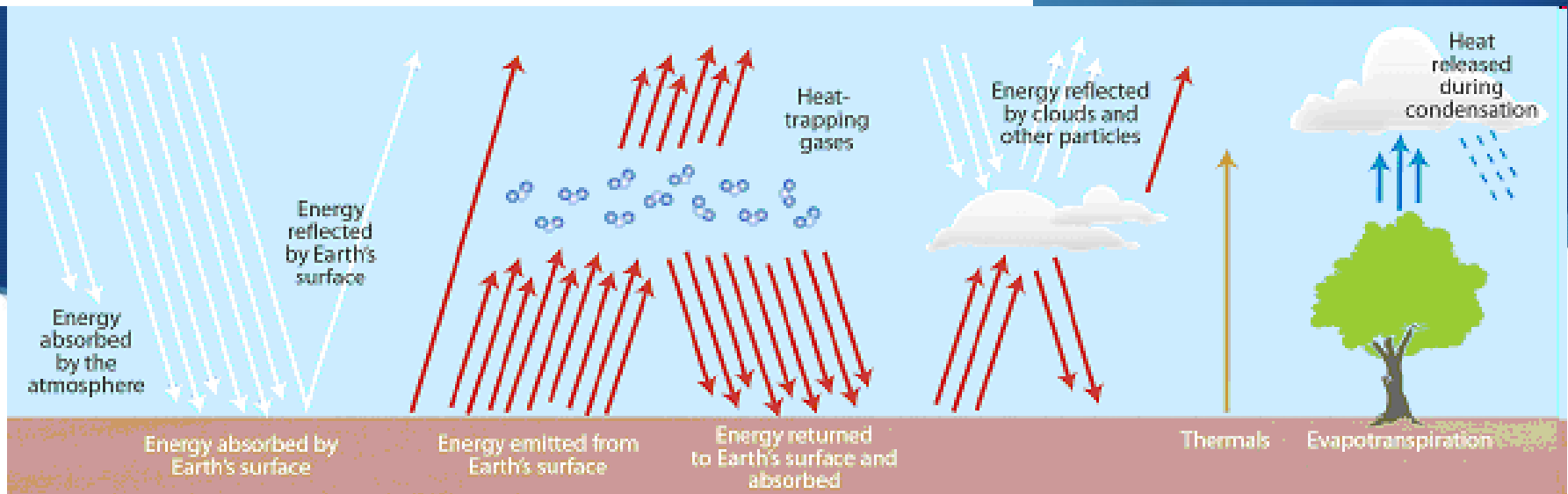
ENHANCED GREENHOUSE EFFECT

Increasing the amount of greenhouse gases intensifies the greenhouse effect. This side of the globe simulates conditions today, roughly two centuries after the Industrial Revolution began.

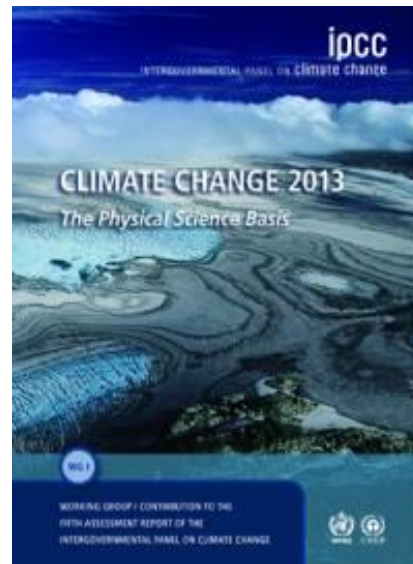


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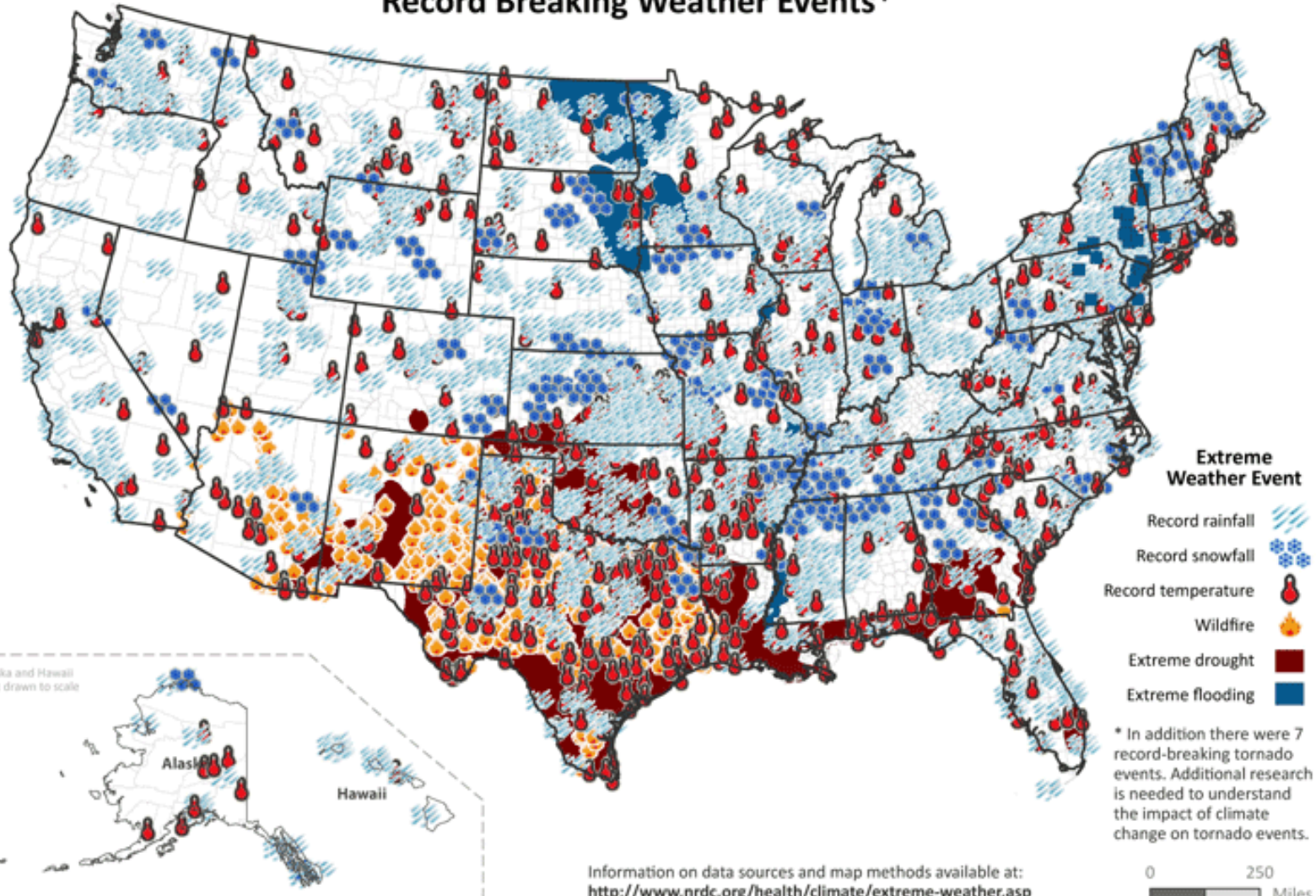
GREENHOUSE EFFECT



Intergovernmental Panel on Climate Change



Extreme Weather in the US (2011): Record Breaking Weather Events*





Scientific Evidence of Health Effects from Coal Use in Energy Generation

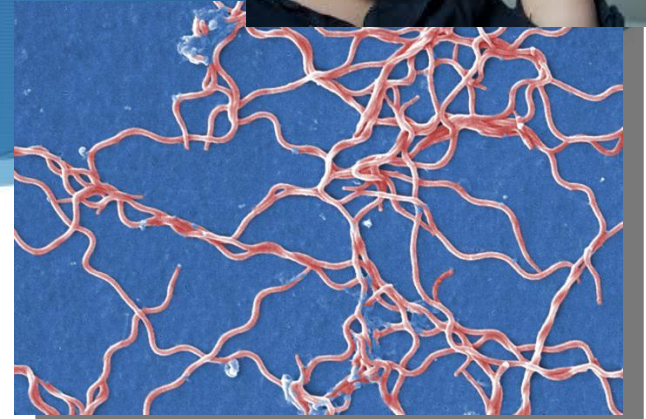
Erica Burt, MPH
Peter Orris, MD, MPH
Susan Buchanan, MD, MPH

University of Illinois at Chicago School of Public Health
Chicago, Illinois, USA

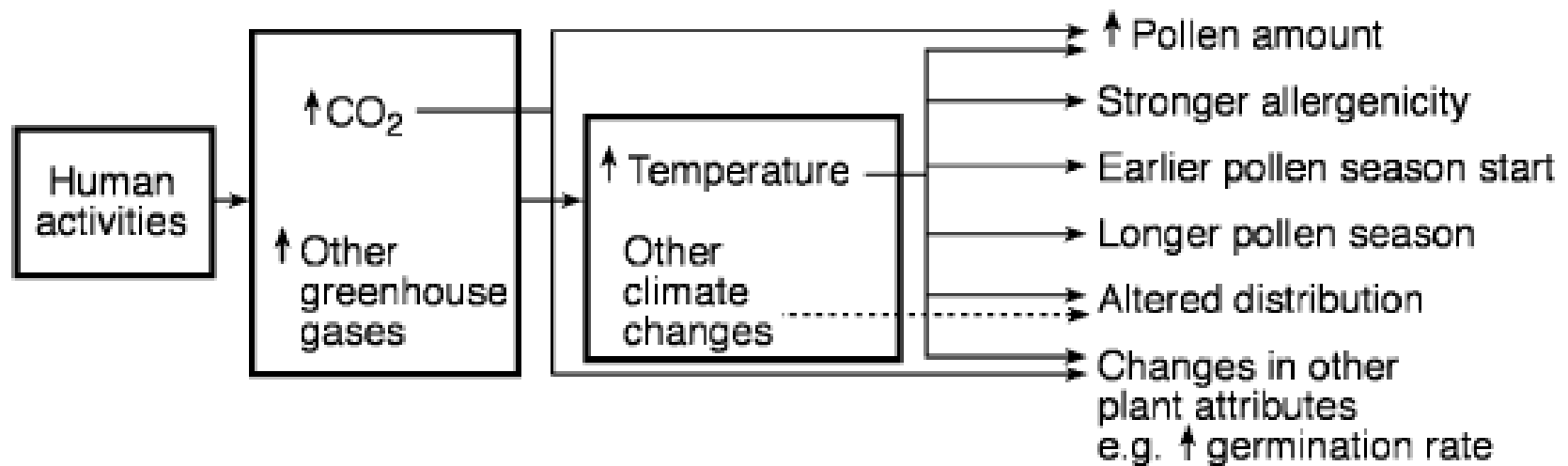
APRIL 2013



Health Impacts



Schematic summary of the impacts of climate change on allergenic plants and pollens



(Beggs)



Energy Impact Calculator: Estimating Health Impacts

Energy Impact Calculator

www.eichealth.org

Practice Greenhealth

- ◆ Allows hospitals to estimate some of health impacts caused by their consumption of energy based on fossil fuels
- ◆ EPA data based, peer reviewed

Energy Impact Calculator

Practice Greenhealth

- ◆ Projected number of incidents
- ◆ Estimates of medical treatment costs
- ◆ External costs to society

Estimated Health Impacts

- Premature deaths
- Chronic bronchitis
- Asthma attacks
- Emergency department visits,
- Work loss days





Climate Change and Health: IS THERE A ROLE FOR THE HEALTH CARE SECTOR?

*by Laura Anderko, Ph.D., RN
Stephanie Chalupka, Ed.D., RN, PHCNS-BC, FAAOHN
Brenda M. Afzal, MS, RN*



www.climateandhealthcare.org/

HEALTHY CLIMATE

HEALTHY PEOPLE

HEALTHY ECONOMY

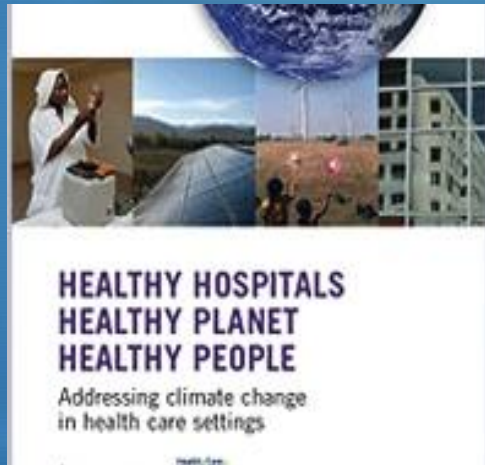
Global Climate
and **HEALTH**
Resource Center



Mitigation of Healthcare Sector's Climate Footprint



Healthy Hospitals, Healthy Planet, Healthy People



HEALTHY HOSPITALS, HEALTHY PLANET, HEALTHY PEOPLE

Seven elements of a climate-friendly hospital

- ◆ **Energy efficiency:** Reduce hospital energy consumption and costs through efficiency and conservation measures.
- ◆ **Green building design:** Build hospitals that are responsive to local climate conditions and optimized for reduced energy and resource demands.
- ◆ **Alternative energy generation:** Produce and/or consume clean, renewable energy onsite to ensure reliable and resilient operation.
- ◆ **Food:** Provide sustainably grown local food for staff and patients.
- ◆ **Transportation:** Use alternative fuels for hospital vehicle fleets; encourage walking and cycling to the facility; promote staff, patient and community use of public transport; site health-care buildings to minimize the need for staff and patient transportation.
- ◆ **Waste:** Reduce, re-use, recycle, compost; employ alternatives to waste incineration.
- ◆ **Water:** Conserve water; avoid bottled water when safe alternatives exist.

Emergency Preparedness

Hazard Mitigation



Hospital Disaster Resilience: Are we ready?

Volunteers form a human chain to carry sandbags in an attempt to protect Mercy Medical Center from the rising flood waters early Friday, June 13, 2008, in southeast Cedar Rapids.



Patients and staff are evacuated from Memorial Medical Center during the Katrina disaster.

<http://www.time.com/time/nation/article/0,8599,1218776,00.html>



Photo by: BILL HABER / AP

Hazard Mitigation Plans

- ◆ Emergency Management, public health, and environmental organizations including Federal Emergency Management Agency (FEMA) have been invited by NRDC and RESOLVE to discuss opportunities to collaborate in addressing climate risks in hazard mitigation
- ◆ A FEMA Petition: Asking the Agency to Require States to Consider Climate Change Impacts in Hazard Mitigation Plans/Response to Petition

Health Benefits of the Clean Air Act



How the Clean Air Act has Improved Health

- ◆ In 2010, approx. \$1.3 trillion (9% of GDP) was gained in public health and environmental health benefits for a cost of \$50 billion (.4% of GDP) EPA, 2011
- ◆ Reduced pollution led to less illness and less days lost to work, school, and less disability and deaths, reduced hospitalizations and other related medical costs (and increased the size of the economy) Goodstein et al., 2010



Summary

Action is needed to reduce carbon emissions & limit the most severe health effects

Health professionals and hospitals in particular can be powerful leaders in reducing emissions and improving health

Taking action creates a “win-win” situation: Many mitigation actions will reduce costs and benefit health

Thank you!

