

Welcome to CHA's Environmental Responsibility Webinar

Climate Change: Health Impact and Catholic Mission

Oct. 4, 2011 | Noon – 1:30 p.m. ET



A Passionate Voice for Compassionate Care

The webinar will start shortly.
Thank you for joining us.

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Climate Change: Health Impact and Catholic Mission



Reflection for Today's Event

An excerpt from *The Canticle of the Sun*, by Francis of Assisi

Be praised, my Lord, through all your creatures, especially through my lord Brother Sun, who brings the day; and you give light through him.

Be praised, my Lord, through Sister Moon and the stars; in the heavens you have made them, precious and beautiful.

Be praised, my Lord, through Brothers Wind and Air, and clouds and storms, and all the weather, through which you give your creatures sustenance.

Be praised, My Lord, through Sister Water; she is very useful, and humble, and precious, and pure.

Be praised, my Lord, through Brother Fire, through whom you brighten the night. He is beautiful and cheerful, and powerful and strong.

Be praised, my Lord, through our sister Mother Earth, who feeds us and rules us, and produces various fruits with colored flowers and herbs.

Praise and bless my Lord, and give thanks, and serve him with great humility.

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Oct. 4, 2011 2

Your Presenters for Today's Event



Dan Misleh is executive director of the Catholic Coalition on Climate Change (CCCC). In his role, he seeks to engage the Catholic community in a conversation about a Catholic approach to climate change focusing on the promotion of the common good, the protection of poor people and the exercise of prudence and to more fully implement the U.S. Catholic bishops' 2001 statement on climate change.

Since 1982, he has been involved in the social mission of the Church beginning as a Jesuit Volunteer in Alaska through his most recent work at the United States Conference of Catholic Bishops as the director of diocesan relations for the Department of Social Development and World Peace.

Your Presenters for Today's Event



Stephanie Chalupka, EdD, PHN-CNS, BC, FAAONN is a professor of public health nursing and director of the master of science in nursing program at Worcester State College. She also holds an appointment as a visiting scientist in environmental health at the Harvard School of Public Health. Dr. Chalupka is the author of over 60 publications in environmental health and public health. She developed the American Association of Occupational Health Nurses' *Core Curriculum in Environmental Health for Nurses*. This program trained over 1,000 occupational health nurses across the U.S. As the PI of the Environmental Protection Agency-funded, *Strengthening the Capacity of Health Professionals Serving Minority and Low-Income Communities to Better Identify, Manage, and Prevent Environmental Health Risks*, she provided professional development programs, in collaboration with state and local health departments throughout New England, to over 1,800 pediatric providers and health professionals. She is currently co-principal investigator for *Healthy Homes for All: Improving Children's Health in Diverse Communities* funded by the United States Department of Housing and Urban Development.

Dr. Chalupka is a member of the Senior Advisory Council of Alliance for a Healthy Tomorrow which works to promote laws and policies that prevent harm to human health from toxic chemicals, the Lowell Center for Sustainable Production Toward Tomorrow Advisory Board, the National Environmental Education Foundation Health and Environment Advisory Committee, and serves as an Environmental Expert for the International Council of Nurses.

Climate Change: Health Impact and Catholic Mission

Daniel Misleh
Catholic Coalition on Climate Change

Catholic Health Association

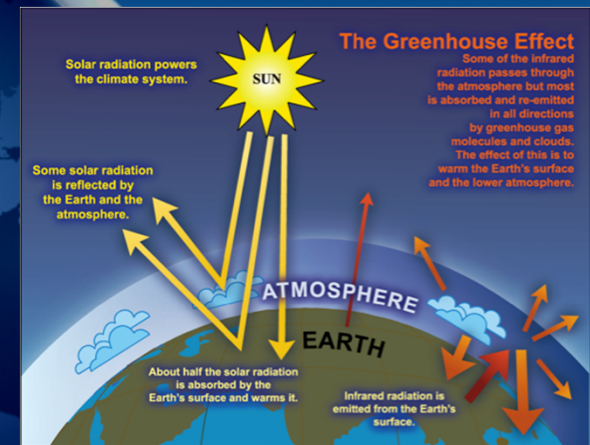
October 4, 2011
Feast of St. Francis



What is Climate Change?

"...we accept the consensus findings of so many scientists and the conclusions of the Inter-governmental Panel on Climate Change (IPCC) as a basis for continued research and prudent action."

USCCB



Today, we all see that man can destroy the foundations of his existence, his earth, hence, that we can no longer simply do what we like or what seems useful and promising at the time with this earth of ours ... we must respect the inner laws of creation ... if we wish to survive.

...And if we must be obedient to the voice of the earth, this is even truer for the voice of human life.

July 25, 2007



And there's more:

"One must take into account the nature of each being and of its mutual connection in an ordered system, which is precisely the 'cosmos'"

John Paul II, *Sollicitudo Rei Socialis*

"...We cannot refuse to interest ourselves in those who will come after us.."

Paul VI, *Populorum Progressio*

"God intended the earth with everything contained in it for the use of all human beings and peoples. Thus, under the leadership of justice and in the company of charity, created goods should be in abundance for all in like manner."

Vatican II, *Gaudium et Spes*

And, of course:

All praise be yours, my Lord, through all you have made,
and first my lord Brother Sun, who brings the day;

...

All Praise be yours, my Lord, through Sister Moon
and the stars; in the heavens you have made them,
bright, and precious, and fair.

All praise be yours, my Lord,
through Brothers wind and air, and fair and stormy,
all the weather's moods...[and]...Sister Water,
so useful, humble, precious and pure.

All praise be yours, my Lord, through Brother Fire,
through whom you brighten up the night...
[and]...our Sister Mother Earth, who sustains us and governs us,
and produces various fruits with colored flowers and herbs.

St. Francis of Assisi, *Canticle of the Creatures*

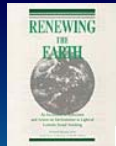
How Far Back?

- For in Christ were created all things in heaven and on earth, the visible and the invisible, (Col 1:16).
- You adorn the year with your bounty; your paths drip with fruitful rain. The untilled meadows also drip; the hills are robed with joy. The pastures are clothed with flocks, the valleys blanketed with grain; they cheer and sing for joy. (Ps 65:12-14)
- We are called to be wise & faithful stewards of God's resources; to use them for the benefit of all (Gen 9)
- God said it was good (Gen 2:4-7).
- God entrusted us to take care of it (Gen 2:15)



US Bishops

- 1991 statement, *Renewing the Earth: An Invitation to Reflection and Action on Environment in Light of Catholic Social Teaching*,
- 1992 program "Renewing the Earth: An Environmental Justice Program." To promote a distinctively Catholic approach to environmental concerns, to foster stewardship of God's creation and to link environmental protection and social justice.
- 2001: Global Climate Change: A Plea for Dialogue, Prudence and the Common Good
- 2006: Catholic Coalition on Climate Change



What are
the
potential
impacts
of
climate
change?



Climate Change: a Life Issue



Climate Change and Poverty



Hopeful Signs

The wisest and most effective programs focus on information, education, and the formation of the sense of responsibility in children and adults towards environmentally sound patterns of development and stewardship of creation.

Archbishop Celestino
Migliore



Catholic Climate Covenant: The St. Francis Pledge to Care For Creation and the Poor



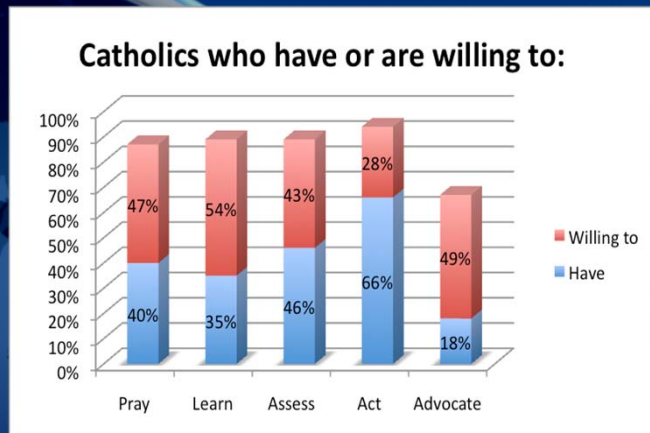
Catholic Climate Covenant: The St. Francis Pledge to Care for Creation and the Poor

The St. Francis Pledge

- ✓ PRAY about our duty to Creation and Poor People
- ✓ LEARN about Catholic teaching and climate change
- ✓ ASSESS our contributions to the problem
- ✓ ACT to change behaviors and choices
- ✓ ADVOCATE on behalf of those without a voice

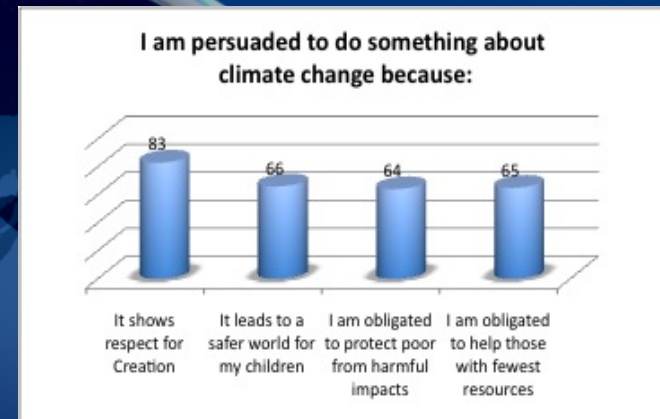


Polling Shows Progress



Zogby International Poll: 1,000 Catholics. March/April 2009

Polling Shows Progress



Zogby International Poll: 1,000 Catholics. March/April 2009

What Others are Doing

SUPPORT

- Archbishops of Cincinnati, Hartford, Los Angeles and Bishops of Stockton, San Jose and Green Bay, Houma Thibodaux, Rochester endorse
- 24 National Catholic Organizations promote the effort.

Catholic Climate Covenant: The St. Francis Pledge to Care for Creation and the Poor

What You Can Do

- ✓Join others by taking the St. Francis Pledge
- ✓Encourage others (your family, parish, schools)
- ✓Go to the website and sign up to receive weekly e-mails
- ✓Highlight (link) the Covenant on your parish website?
- ✓Write a brief reflection about this experience.

✓Learn much more at:

catholicclimatecovenant.org







Q&A

Climate Change: *Health Impacts and Opportunities for Action*

Stephanie Chalupka, EdD, RN, PHCNS-BC, FAAOHN

Overview

- The Science of Climate Change
- The Environmental and Health Impacts of Climate Change
- Vulnerable Populations
- Opportunities for Action
- Conclusion and Acknowledgements
- Questions and Answers

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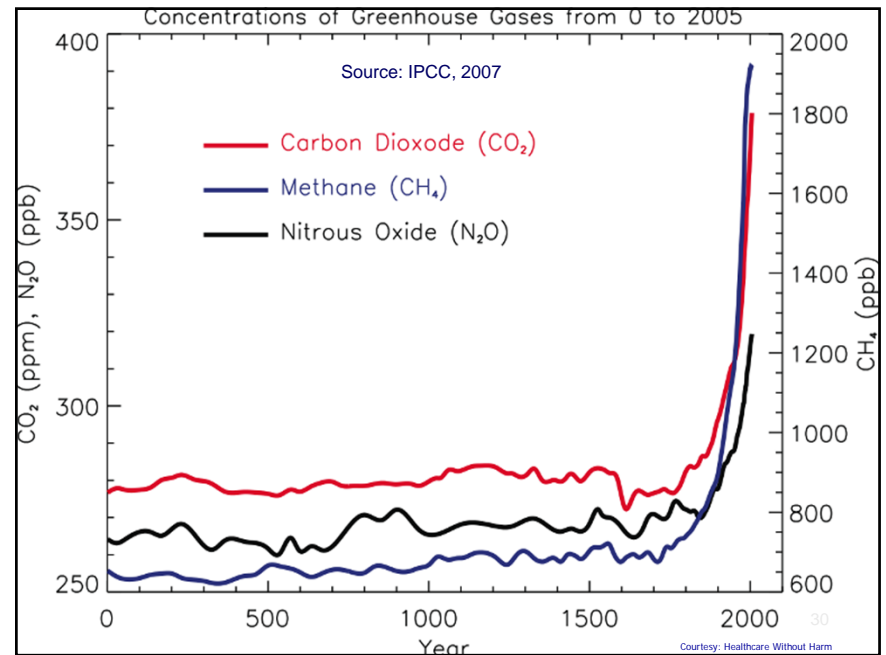
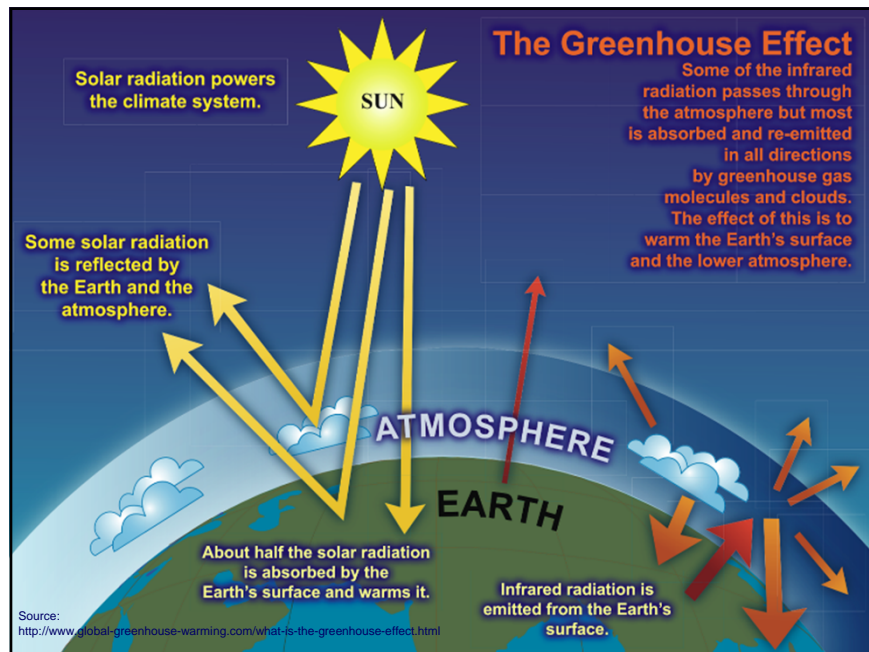


"Climate change is the biggest global health threat of the 21st century... The impacts will be felt all around the world – and not just in some distant future but in our lifetimes and those of our children."

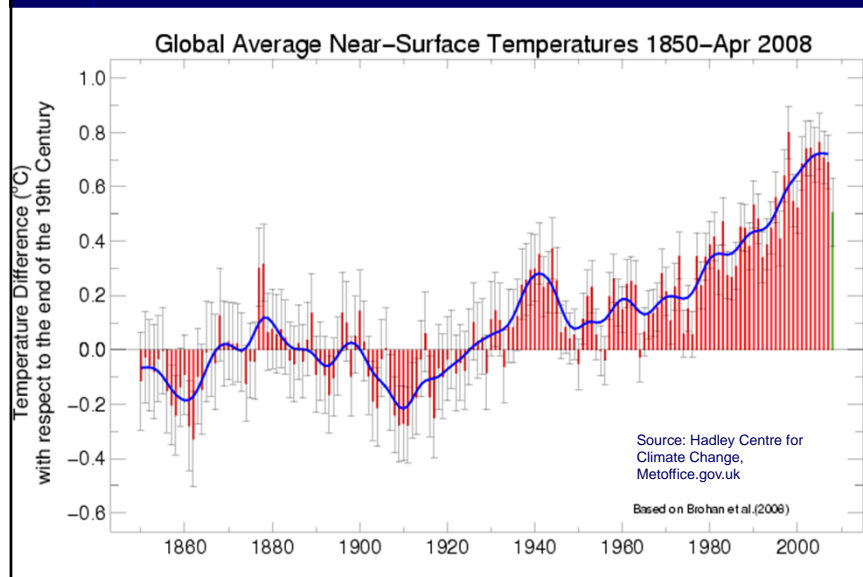
The Lancet

Courtesy: Healthcare Without Harm





Unprecedented Warming



Climate Change Skeptics

- The term *global warming* is misleading
- Intergovernmental Panel on Climate Change
 - Scientific consensus on climate change
 - Peer review process - high level of scrutiny and credibility
 - Represents a multitude of expert opinions

The American 'allergy' to global warming: Why?



Our Greatest Public Health Challenge?

- Increased sea levels
- Decreased access to water
- Increased storm activities
- Increased drought / fires
- Increased heat waves
- Critical changes in agriculture / food security
- Environmental refugees
- Increased morbidity and mortality



Climate Change and Human Health

- Illness, injury, mortality
- Aggravate pre-existing conditions
- Infectious diseases
- Water- and food-borne diseases
- Mental health
- Population displacement
- Food insecurity, instability and conflict



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Extreme Temperatures: Heat Waves

Most vulnerable populations:

- Elderly, young children
- People living alone, socially isolated, mentally ill
- Socio-economically disadvantaged
- People lacking access to air conditioning or cooling spaces
- People with chronic diseases
- People who work outside
- People taking certain medications

Increase in heat related illnesses and mortality:

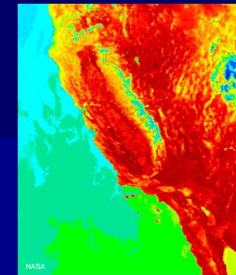
- Heat cramps
- Heat exhaustion
- Heat stroke

CDC 35

Heat Wave Examples

2006 California heat wave

- Daytime temperatures > 100 degrees for 2 weeks
- Record nighttime highs
- > 1 million people lost electricity
- Death toll: 150-450
- Excess ER visits: 16,000
- Excess hospitalizations: 1000

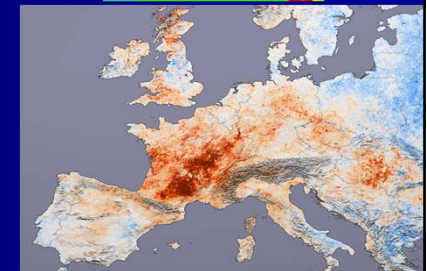


2003 European heat wave

- Death toll > 45,000

1995 Chicago heat wave

- Death toll: 900

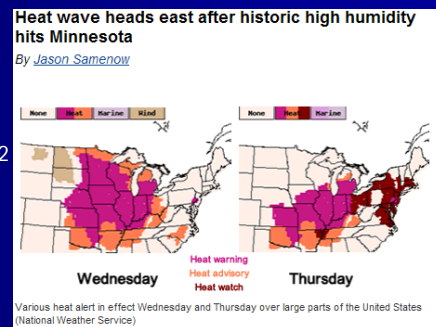


Source: HCWH

NASA 36

Heat Wave Examples

- Prairie Du Chien, Wisconsin: 116
- Fort Hood, Texas: 111
- Memphis, Tennessee: 112
- Aberdeen, South Dakota: 119
- Offut Air Force Base, Nebraska: 112
- St. Louis, Missouri: 110
- Newton, Iowa: 129
- Indianapolis, Indiana: 110
- Champaign/Urbana, Illinois: 117



Baseline Public Health Costs of Heat Waves

- Uncertainty on the overall number of deaths from extreme heat events
- EPA: 1,700 – 1,800 excess deaths per summer
- CDC: 3,442 deaths between 1999 and 2003 (annual mean of 688 deaths)
- Using CDC data (\$7.4 million value for a statistical life), the baseline public health cost of premature deaths from heat waves each year is estimated to be \$5.1 billion (Markandya, 2009)



Zoonotic and Vector-Borne Diseases

- Introduction and spread of new diseases
- Increased geographical range and risk of current diseases
- Re-emergence of formerly prevalent diseases
- Prolonged transmission cycles
- Examples: Lyme disease, West Nile Virus, Dengue Fever, Malaria, Chikungunya, Tularemia, Rabies



Source: HCWH

Water- and Food-Borne Diseases

- Increased air and water temperatures increase the replication, persistence, survival, transmission and range of some pathogens
- Heavy rainfall and flooding facilitates rapid transportation of pathogens to water supplies



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Health Effects of Climate Change



Unique vulnerabilities

Environmental Justice

Unborn: Adverse Impact on Reproductive Outcomes

- Limited access to safe food and water, interrupted access to health care, psychological stress and exposure to environmental toxins, which may accompany extreme weather events.
- Increasing exposure to air pollutants or climate-sensitive infectious diseases adds increased risk to the pregnancy (Balbus & Malina, 2009).



Unborn

- Strong causal relationship between air pollution and respiratory deaths in the post-neonatal period. (Radlmm et al.)
- Study of 60,000 births in California found that increased temperatures were significantly associated with preterm birth for all mothers, regardless of maternal racial/ethnic group, maternal age, maternal education, or sex of the infant. (Basu et al., 2010)
 - 8.6% increase in preterm delivery was associated with a 10°F increase in the weekly average temperature, with greater risks observed for younger mothers, Blacks, and Asians. (Basu et al., 2010).



Unborn

- 37.1 million births- exposure to extreme hot temperatures during pregnancy leads to lower birth weight.
- Birth weights will decrease on average by 0.22 percent (7.5 grams) among whites and by 0.36 percent (11.5 grams) for blacks by the end of the century. (Deschenes et al, 2010)



Children



- Greater sensitivity to certain exposures:
 - children are especially vulnerable to air pollution
 - lungs are developing and growing
 - they breathe at a higher rate than adults
 - they spend more time outdoors engaging in vigorous physical activity.

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Image: Health Canada www.hc-sc.gc.ca

Allergic Respiratory Diseases and Bronchial Asthma

- Increasing worldwide, with people living in urban areas more frequently affected than those living in rural areas.
- District of Columbia, significant associations were found between ozone concentrations and asthma-related ED visits, especially for 5-12 year olds.
 - Increases in the risk of asthma-related ED visits for children living in higher poverty zip codes versus other zip codes were also observed (Babin et al, 2007).



Asthma

- Linked regional climate and air quality information to New York State Department of Health records of pediatric, asthma-related emergency room visits in 14 counties that are part of the New York City metropolitan area.
 - Changing levels of ozone could lead to a 7.3 percent increase in asthma-related emergency room visits by children, ages 0-17 by 2020s (Sheffield et al, 2011)



Increased Ozone and Poor Air Quality

- Increased risk of ER visits and hospital admissions for respiratory illness.
- Increased risk of asthma onset and exacerbations, cardiac arrhythmias, myocardial infarction and total mortality.





Pollen and other aeroallergen levels are also higher in extreme heat.

Photo: WHO www.who.org

Children



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 - children are especially vulnerable to air pollution
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 - they spend more time outdoors engaging in vigorous physical activity

4

Image: Health Canada www.hc-sc.gc.ca

Children



- Higher risk from extreme weather events such as hurricanes and floods.
- Health consequences:
 - injury, death
 - increases in infectious diseases
 - posttraumatic mental health and behavior problems:
 - PTSD
 - aggressive behavior
 - sadness
 - substance abuse

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Children



- Depend on caregivers for their own preparedness and response.
 - Lessons of Hurricane Katrina
- Probability that global warming will continue for decades:
 - possibly for centuries
 - issues of intergenerational equity

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Older Adults



- Tend to have less resiliency and/or reserve.
- Are at higher risk of health effects related to food and water shortages.
- More isolated.
- Are more likely to be living with chronic diseases.

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Older Adults

- Intense short-term fluctuations in temperature can also seriously affect health causing:
 - heat stress (hyperthermia)
 - extreme cold (hypothermia)
 - increased death rates
 - cardiac diseases
 - respiratory diseases



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Older Adults

- Advanced age: Significant risk factor
- Older adults have:
 - diminished ability to regulate body temperature and to adapt physiologically to heat.
 - frequently pre-existing morbidity.
 - reduced social contacts, more likely to live alone-further increases their vulnerability.

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"The poor are likelier to be sick. The sick are likelier to be poor. Without intervention, the poor get sicker and the sick get poorer."

-Jack Geiger, MD

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Poor

- People without access to:
 - air conditioning are vulnerable to excessive heat events, or heat waves.
- Urban poor are particularly vulnerable:
 - “urban heat island” phenomenon.
 - city environments increase thermal-storage capacity.
 - routinely experience ambient air temperatures from 2° - 10°F warmer than the surrounding rural and suburban areas.



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Poor

- Have fewer resources to cope with effects of climate change, such as:
 - Forced relocation
 - Food shortages
 - Property loss



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Poor

Pre-existing medical conditions:

- including cardiovascular disease
- respiratory illnesses
- obesity

These conditions are *already* more prevalent among the poor, and the poor are less likely to be able to access and afford treatment.



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Approximately 600,000 deaths occurred worldwide as a result of weather-related natural disasters in the 1990s, some 95% of which took place in developing countries.

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Poor

- Particularly vulnerable to floods and storm surges.
- May live in high-risk areas such as flood plains and coastal zones.
- May have access to a limited public health infrastructure.
- Less likely to be covered by health insurance.



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Poor

- Poor and subsistence farmers
- Pastoralists
- Fishermen



Image: WHO www.who.org



Climate change effects on the poorest countries of the world?

- Malnutrition
- Increased death and disease
- Expansion of the geographic range of malaria



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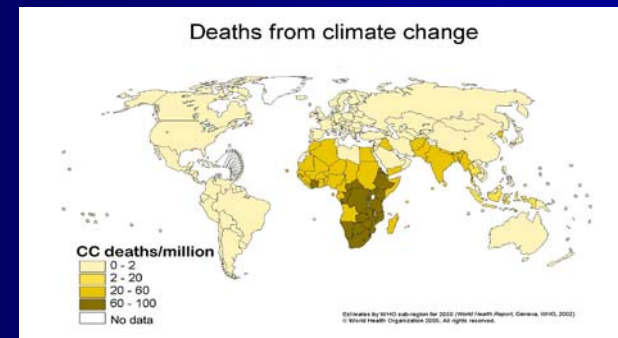
Climate change effects on the poorest countries of the world?

- Malnutrition, inadequate and unsafe water, poor-quality nutrients, and the burning of low-quality fuels for household use — *are all significantly sensitive to climate.*
- In low latitudes and areas with marginal rainfall
 - local warming of even a degree or less may reduce substantially the yield of principal grain crops



Image: WHO www.who.org

Most Severe Health Burdens from Global Warming?



Greatest effect on countries that are *least* responsible for the emission of greenhouse gases.

Map: WHO www.who.org

Environmental Refugees

- Displaced from their homes by such phenomena as:
 - rising sea levels
 - expanding deserts
 - catastrophic weather events, flooding, etc.



Image: WHO www.who.org



Environmental Refugees

- Highly vulnerable to disease.
- At risk of spreading communicable diseases to new areas.
- Vulnerable to shortages of often limited local resources.
- Subject to interruptions in supply chains and access to therapies for chronic medical conditions.
- Subject to physical attack and emotional stress.



Climate Change Impact: Mental Health

- Aftermaths of natural disasters:
 - PTSD
 - Major depression
 - Somatoform disorders
- Needs of people with chronic mental illness often overlooked.



Yet, the mentally ill have multiple vulnerabilities for increased mortality and morbidity.

L. A. Page and L. M. Howard (2010). The impact of climate change on mental health. *Psychological Medicine*, 40, pp 177-180

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Climate Change Impact: Mental Health

As global temperatures increase, people with MI are particularly vulnerable to heat-related death.

- Contributing risk factors are all highly prevalent in people with serious MI:
 - psychotropic medication
 - pre-existing respiratory & CV disease
 - substance misuse
- Maladaptive coping mechanisms and poor quality housing are likely to further increase vulnerability, and death by suicide.



L. A. Page and L. M. Howard (2010). The impact of climate change on mental health. *Psychological Medicine*, 40, pp 177-180

Climate Change Impact: Mental Health

- Psychological distress, anxiety and traumatic stress resulting from emerging infectious disease outbreaks.
- Coastal change and increased flooding
 - forced mass migration and displacement, which will undoubtedly lead to more mental illness in affected population.



L. A. Page and L. M. Howard (2010). The impact of climate change on mental health. *Psychological Medicine*, 40, pp 177-180

Cost of Climate Change

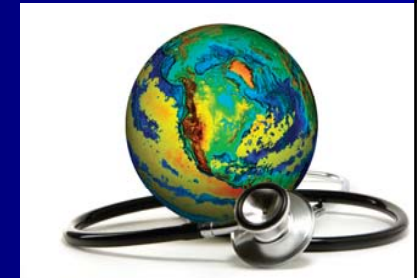
- Since the 1970s, climate change contributed to approximately 150,000 deaths per year. (WHO, 2000)
- Global economic value of loss of life due to climate change has been estimated between \$6 billion and \$88 billion. (Fankhouser, 2002)
- Predicted to be substantially higher in low-income countries. (Viscusi and Aldy, 2003)

Cost of Climate Change

- Ozone pollution and poor air quality as a result of climate change have been estimated for the U.S. to be approximately \$2.7 billion to \$5.4 billion (2008 US dollars) for small increases in ozone levels (1 ppb, and 2 ppb respectively). (Perera & Sanford, 2011)
- Health care costs for treating childhood asthma is now \$2.2 billion (2008 US dollars) annually and reflects a significant increase since last reported in 1997.
(Trasande & Liu, 2011).
- *If current regulations were changed* to reduce air pollution 7% below the current standard, the U.S. would save an estimated \$15 million a year in health care costs. (Sheffield & Landrigan 2011).

Is There Still Time to Act?

- We are in the phase of:
 - Health Care providers “secondary prevention”
 - Climatologists call “adaptation”
 - Economists call “risk mitigation”



Global Climate Change and Human Health Resolutions



■ American Medical Association, 2008

1) endorse the findings of the 4th Intergovernmental Panel on Climate Change; 2) support research to explore the human health effects of climate change; 3) support state, federal and international policy coordination to 10 develop adaptive strategies to respond to the predicted human health effects of climate change; 11 and 4) encourage Congress and the President to adopt national and international policies to 12 reduce the emissions of greenhouse gasses."

■ American Nurses Association, 2008

"American Nurses Association recognizes and publicly acknowledges that the challenges we face as a result of global climate change are unprecedented in human history and it is critical that nurses speak out in a united voice and advocate for change on both individual and policy levels."

■ American Public Health Association, 2007

"The public health community should advocate for mitigation and avoidance of climate change, track the impacts of climate change on human health, and assist with adaptation, to the degree possible, to those health effects caused by changes in climate that can not be prevented."

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Action Strategies for Clinicians



- Be a champion at work and in your communities.
 - model & counsel patients on sustainable behaviors
- Engage professional organizations.
 - members start living sustainably themselves.
 - counsel their patients on sustainable behaviors.
 - develop and implement clinical tools.
- Link to state and national efforts.
- Work at your highest level of discomfort!

Clinicians Can Play a Key Role Combating Climate Change



- Encourage green practices and energy efficiency in your medical facility
- Provide brochures, relevant literature and informational posters in waiting areas and lobbies to educate patients and their families about how they can reduce their emissions
- Make recommendations to patients that improve health and wellbeing and reduce greenhouse gas emissions (such as eat less meat, walk and bike more, use public transit)

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Source: Healthcare Without Harm

Addressing Climate Change in the Health Care Sector



"The health care industry has a critical role to play in climate change mitigation. Energy usage in medical facilities is highly intensive. In fact, hospitals expend about twice as much total energy per square foot as traditional office space."

(Department of Energy, 2003)

Jacobsen/Corbis, iStockphoto.com

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Reducing The Health Care Sector's Green House Gas Emissions Is a Task of National Importance

- * Health care industry ranks second only to the food service industry in intensity of energy use
- * Medical facilities are high GHG emitters and spend \$5.3 billion/year on energy
- * The health care sector has a large national impact
 - * Health care comprises 1/7th of the US economy
 - * 100 million sq. ft. of medical building space is constructed annually



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Seven Focus Areas for Mitigation Within Health Care Facilities

- Transportation
- Energy Conservation and Efficiency
- Alternative Energy Generation
- Green Building Design
- Waste Disposal and Management
- Food Service
- Water Conservation

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Dell Children's Medical Center of Central Texas: Innovative Green Building Hospital

*First hospital in the world to receive the LEED
Platinum Certification*

- Sustainable Construction Site
 - Recycled 92% of construction waste
- Water Efficient
 - Reclaimed water irrigation, xeriscape landscaping, low flow plumbing
- Energy Efficient
 - 4.3 megawatt natural gas-fired power plant on site
- High indoor environmental air quality and lighting
 - Low VOC paint and flooring
 - Sunlight reaches 80% of the available space
- Material and Resource Conservation
 - Use local materials



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Clinician Role: Climate Change and Policy

- Inform, educate and engage with the public
- Lead by example personally and professionally
- Advocate for development and implementation of state, federal and international climate policies
- Engage decision-makers
- Disseminate information to colleagues and networks
- Collaborate with professionals outside of the health sector

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**"The health sector can play
a key role in helping
societies adapt to the
effects of climate change
and the risk it poses to
human health."**

-The Lancet

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Acknowledgement: *Community Benefit & Continuing Care*
The Catholic Health Association of the United States



Questions?

Image courtesy of treehugger.com

Q&A