



Climate Change and Health



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climate**health**connect
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Climate Change and Health – Key Points

- Climate change is the greatest public health challenge of the 21st Century.
- We can create a climate for health: Reducing, Ready, Resilient
- There are many win-win opportunities to simultaneously improve health and address climate change.
- We need faster and more aggressive action to avert catastrophic impacts on our children and grandchildren.



“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





Health Impacts of Climate Change

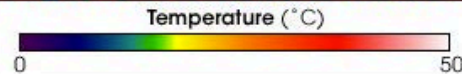
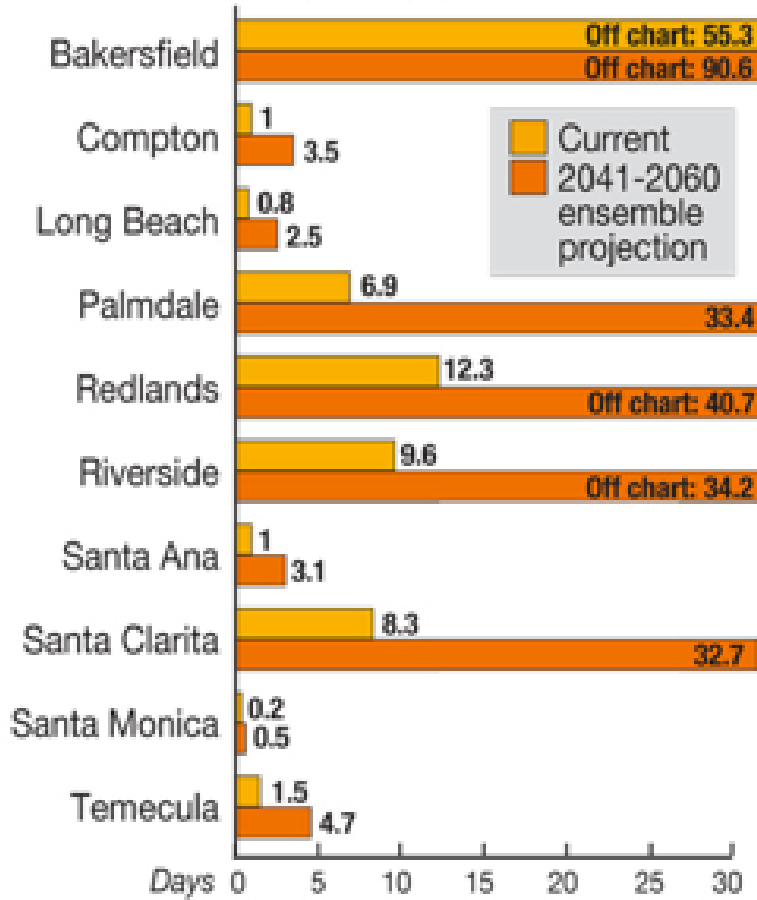
More extreme temperatures	Heat	Heat stress, cardiovascular failure
Sea level rise	Extreme weather	Injuries, fatalities
Saline intrusion		
Stronger hurricanes & storm surges	Air pollution	Asthma, respiratory disease, heart disease
Increased ozone concentrations & diminished air quality	Allergens	Respiratory disease, poison ivy/oak
Increased pollen & natural air pollutants	Vector-borne disease	Malaria, dengue, encephalitis,
Increased precipitation and flooding	Water-borne disease	Cholera, campylobacter cryptosporidiosis.....
Increased droughts and water scarcity, water contamination	Food-borne disease	Salmonella, shigella
Ocean acidification	Water & food supply	Malnutrition, food insecurity, diarrhea
More frequent wildfires	Environmental refugees	Forced migration, civil conflict, immigration
Range of disease vectors		
Harmful algal blooms	Mental health	Anxiety, despair, depression, PTSD

Adapted from J. Patz

Extreme heat days will increase

Current and projected temperature extremes for Southern California

Annual days exceeding 95 degrees F

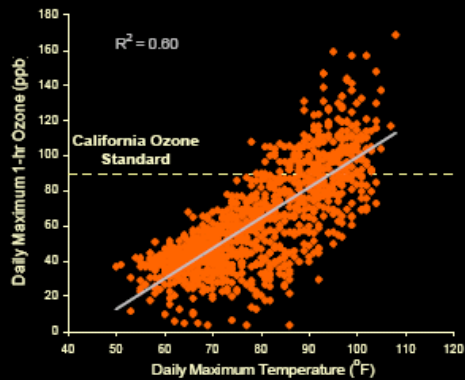


Credit: NASA.gov

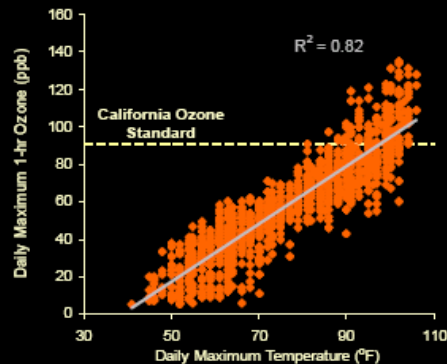


Higher Temperatures Worsen Air Pollution

Ozone versus Temperature



Riverside, 2003-2005



Fresno, 2003-2005



Diesel emissions not only pollute and threaten our climate, they also are a major health hazard. (Los Angeles Times)



Photo: Tudor Van Hampton / ENR

Climate Change and the Health Gap



Health-Care Costs of Climate Events

Climate-related health stressor	Premature Deaths	Hospitalizations	Total Health-care Costs \$\$ (thousands)
Ozone pollution	795	4,150	6,534,642
Heat wave	655	1,620	5,353,425
Hurricane	144	2,197	1,392,833
Infectious disease	24	204	207,447
River flooding	2	43	20,357
Wildfires	69	778	578,640
Total	1,699	8,992	\$14,087,344

Knowlton, Health Affairs, 2011



Creating a Climate for Health

- Reduce GHG emissions
- Get **Ready** for climate change
- Support climate **Resilient** communities

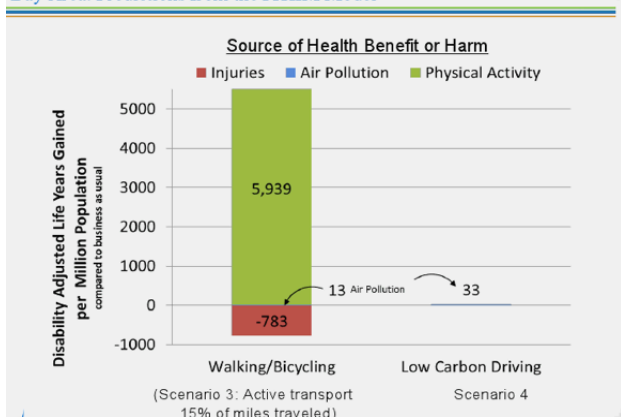
Active Transportation and Health

Shift in active transport from <5 to 22 minutes/day (2% to 15% mode share) in Bay Area

- 14% reduction heart disease, stroke, diabetes
- 6-7% reduction depression, dementia
- 5% reduction breast and colon cancer
- Added 9.5 months life expectancy
- 19% increase bike/ped injuries
- \$1.4 to \$22 billion annual Bay Area health cost savings
- >14% reduction in GHG emissions



Annual Health Benefits of Active Transport and Low Carbon Driving in the Bay Area: Predictions from the ITHIM Model



GHG reduction: **14%** **33.5%**



Climate Ready and Resilient for Heat and Health

■ Buildings:

- Up-date Green Building and Building Energy Efficiency Standards

■ Surfaces:

- Expand the use of porous pavements

■ Urban Greening:

- Trees – green roofs – green open space – urban streams

■ Extreme Heat Events:

- Improve Heat-Health Warnings
- Identify vulnerable populations
- Protect the energy grid
- Protect outdoor workers





Strong Action Now to Create a Climate for Health

- “If we don’t take action regarding climate change, our future generation will be roasted, toasted, fried, and grilled.”

Christine Lagarde, Chief, IMF

- “If there is not action soon, the future will become bleak.... My wife and I have two sons...when they grow old, this could be the future they inherit.

Dr. Jim Young Kim, President World Bank

Thank you!

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