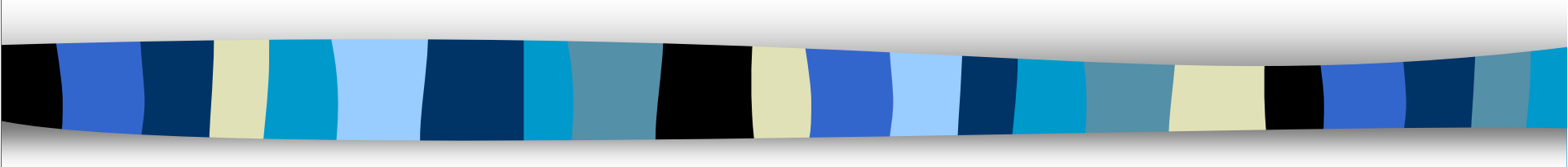


Climate Change Mitigation and Public Health



Linda Rudolph, MD, MPH
California Department of Public Health
October, 2008

Challenges

- Complexity
- Time frame
- Communication

Co-benefits – a true win-win

- Co-benefits
 - Public health benefits independent of the direct benefits of climate change mitigation

- Increase motivation to reduce GHG
 - Short-term and local
 - Lower net costs of mitigation

- Improve population health

- Strengthen public health partnerships and inter-sectoral collaboration

Climate Change, Air Pollution, and Health

- Fossil fuel combustion → GHG emissions (CO₂) & air pollutants
 - California has worst air quality in US (high ozone, PM levels)
 - 8,800 deaths/year attributable to air pollution in Ca.
 - Ozone: asthma, MI, CV disease, COPD, dec. lung function in children
 - CARB: attain PM standards would avert 6500 premature deaths/year

- Climate change and air quality linked
 - Warming increases ozone formation
 - Air pollutants influence the life times of GHGs

- With each degree of temperature rise, deaths from ozone and PM will increase.

- CARB: scoping plan will prevent 400 premature deaths
- Canada: proposed GHG emissions reductions would also
 - 3,300 premature deaths per year avoided with 15% GHG reduction (based on PM reduction only)

- Value of health benefits of reduced air pollution = 30 to 80% abatement costs

Fuel Efficiency, GHGs, and Injury Prevention

- Speed, fuel efficiency, and emissions
 - Fuel efficiency drops 1% per mph increase above 55 mph
 - UK estimates
 - 70 mph limit: save 1 MtC/year
 - 60 mph limit: save 1.88 MtC/year
- Speed and highway fatalities
 - 4300 deaths and nearly 300,000 injuries in California annually
 - 9000 fewer U.S. MVA fatalities in 1st year after 55 mph speed limit
 - Restriction to 65 mph or less will save almost 3,000 lives per year U.S.

Low carbon fuels, climate change, and health

- Corn ethanol only currently available bio-fuel
 - US goal: 17% by 2017 – 35 billion gallons
 - E85 (85% ethanol) would increase ozone-related mortality & asthma in LA by 9%
 - Food insecurity: diversion of corn to bio-fuels causes increased corn and other food prices
 - Corn ethanol increases total life cycle emissions 6x gasoline (deforestation)

Climate Change, Transportation, Land Use, and Health

- Transportation and land-use infrastructure interact to create disincentives for active transport; smart growth promotes physical activity
- Inactivity a key contributor to weight gain, CVD, cancers
- Multiple health benefits of physical activity
- Calculating co-benefits of exercise-based transport
 - If ½ trips in London by active transport
 - 72% reduction in GHG emissions
 - 20-40% decrease premature mortality, 25% decrease breast cancer risk, 30% decrease diabetes
 - If people in US walk/cycle for recommended exercise time
 - Reduce US oil consumption (& emissions) up to 38%
 - Burn 12.2 – 26 kg fat

Climate Change, Agriculture, Diet & Health

- Agricultural activity contributes 22% total GHGs
 - Fertilizers (NO_x), CAFO (methane), burning, transport, deforestation
 - 80% global ag emissions: livestock production
- Meat consumption:
 - American diet produces extra 1.5 CO₂e vs. vegetarian diet
 - 2.2 pounds beef = CO₂e of 155 miles driving
 - Increased risks of CV disease, obesity, colorectal cancer, breast cancer, prostate cancer
- Food production
 - 17% fossil fuel use in U.S. for food production
 - Up to 40% energy in food production: artificial fertilizers and pesticides
 - Average food miles: 1500
- Health benefits of urban agriculture
 - Nutrition (increase consumption fresh produce) & food security
 - Increase physical activity w/ associated health benefits
 - Mental health (e.g. social networking, social cohesion)
 - Safe places in neighborhoods

Co-Benefits of Adaptation Strategies

- Reducing Urban Heat Islands
 - Cool roofs, cool paving, urban trees
- Urban trees also
 - Reduce electricity consumption (shading)
 - Improve air quality
 - Absorb polluting gases
 - Attach PM to leaves
 - Reduce ozone levels (with cooling)
 - Improve quality of life – reduce stress

Environmental Justice – Global and Local

- Global equity
- Contraction and convergence
- Local environmental justice

What can we do?

- Educate, motivate, lead
 - Ourselves and our organizations
 - Public – communities, businesses, schools, CBOs
 - Local, state, and national policymakers

- Integrate public health in climate change discussions
 - AB 32, SB 375, Resources
 - Health impact assessments
 - Prevention, resilience, and equity

- Integrate climate change in public health discussions

Action is Urgent!

“Ignorance is no excuse for us. There is overwhelming scientific evidence of global warming, its causes, and many of its implications. Today’s generations will be accountable, and how tall we stand remains to be determined. There is still time, but just barely.”

James Hansen