



Climate Change and Health

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Southern Environmental Law Center

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Southern Environmental Law Center: The Power of the Law

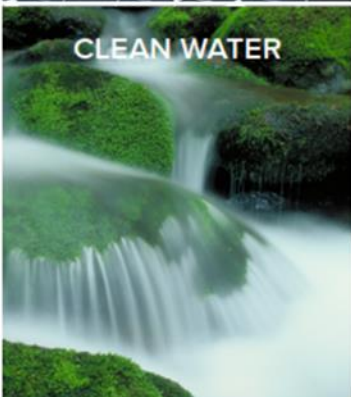


SOUTHERN ENVIRONMENTAL LAW CENTER AT A GLANCE

CLEAN ENERGY & AIR



CLEAN WATER



LAND & COMMUNITY



For more than 30 years, SELC has used the power of the law to protect the South's environment and all the people who depend on it for their health and wellbeing. Our work is increasingly of national and even global significance as SELC steps up to defend bedrock federal safeguards—while serving as on-the-ground watchdog and enforcer right here at home throughout our six states.



COAST & WETLANDS



MOUNTAINS & FORESTS



SPECIAL PLACES & WILDLIFE



WHERE WE WORK: 9 offices throughout the Southeast and on Capitol Hill

STAFF: 80+ attorneys working on 200 active cases and projects

FUNDING: Nonprofit, funded by individuals, families, and foundations

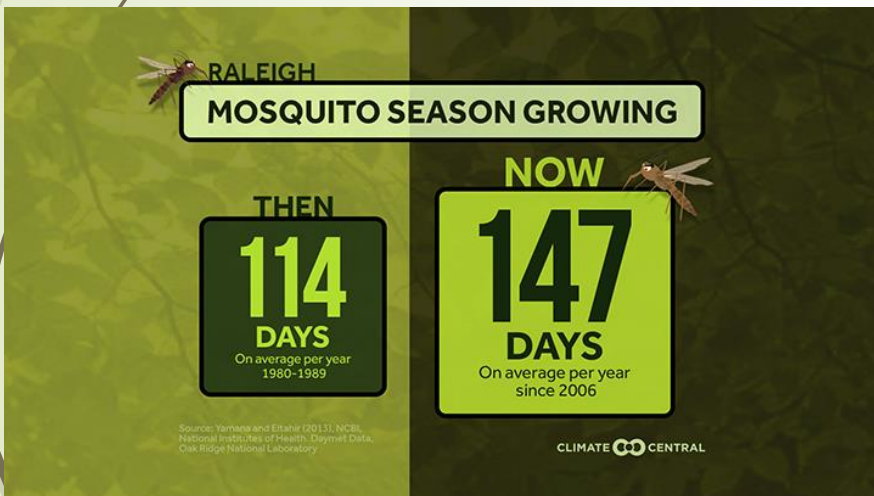
LEARN MORE: SouthernEnvironment.org

Climate Change Predictions: By 2100



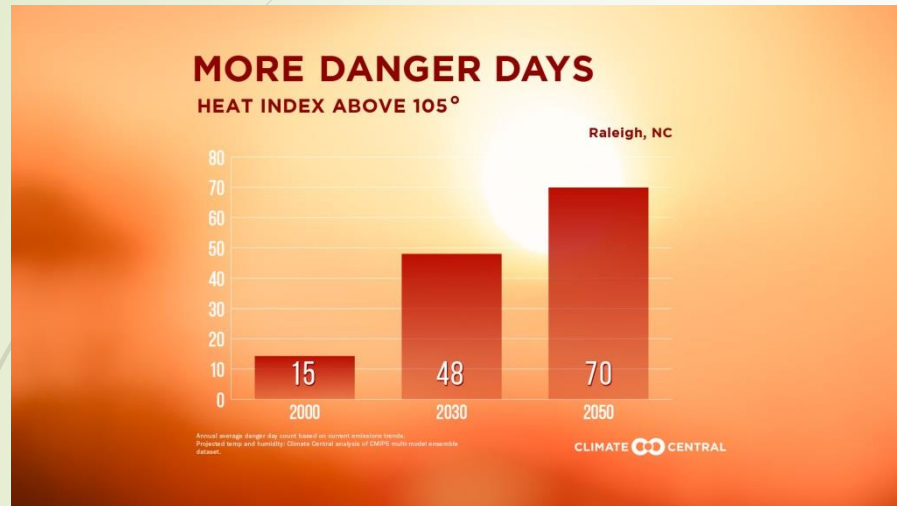
- At least 2° C Increase in Global Surface Temperatures
- 2-3 Feet of Sea Level Rise
- 1-4 C° Increase in Ocean Temperature
- Deadly Heat Waves Affecting Up to 75% of the Population
- Extreme Weather
 - More frequent and stronger hurricanes
 - More frequent and intense extreme precipitation and flooding
 - Increased risk of drought
 - Increased risk of wildfire

North Carolina: 1950-present



- Hurricane Florence: 50% wetter
- 86% increase in heavy downpours
- 30% longer mosquito season
- 18.6 more days above 105°
- 11 inches of sea level rise

North Carolina: By 2050



- 460% increase in days with heat index above 105°
- 50% increase in severity of summer drought
- 100% increase in days with high wildfire potential
- 900% increase in risk of 100-year flood in the Outer Banks
- 1-2 feet of sea level rise

Health Impacts of Climate Change



- All Americans are at risk
- Health risk multiplier
- Vulnerable populations are at the highest risk



Vulnerable Populations: Low Income, Minority, Urban, and Indigenous Communities



Air Quality: Climate Impacts



- Higher temperatures lead to:
 - More pollen and mold
 - Increased concentrations of ozone, fine particles, and dust
 - More wildfires, which are a major source of particulate matter pollution
 - Increased concentration of aerosolized marine toxins



Air Quality: Health Impacts



- Asthma
- Other Respiratory and Cardiovascular Diseases
- Cancer
- Neurological Disease



Air Quality: Vulnerable Populations



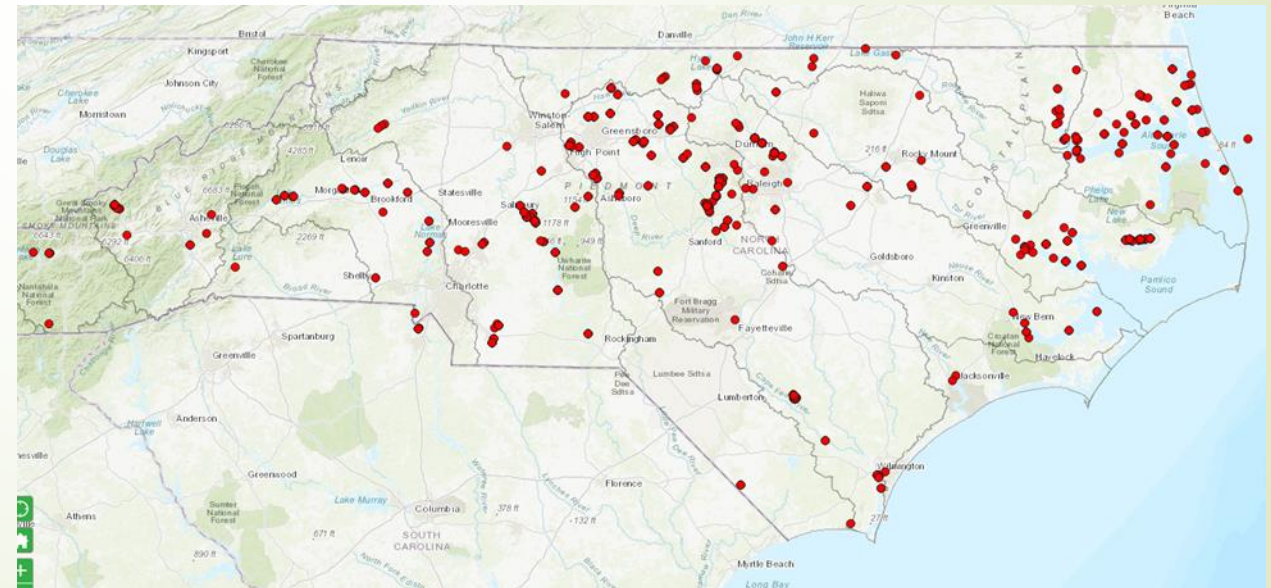
- Children
- Pregnant Women
- Elderly
- Individuals with Preexisting Conditions
- Low-Income Communities



Water and Oceans: Climate Impacts



- Increased Pathogens and Toxins
- Increased Water Temperature and Acidity
 - Harmful Algal Blooms
 - Loss of Biodiversity and Reduction in Species



Water and Oceans: Climate Impacts



- ▶ Drought
- ▶ Sea Level Rise, Extreme Precipitation, and Flooding



Water and Oceans: Health Impacts



- Waterborne Diseases
- Malnutrition
- Cancer and Neurological Disease
- Developmental Issues



Water and Oceans: Vulnerable Populations



- Children
- Pregnant Women
- Coastal and Indigenous Communities
- Low-Income Communities

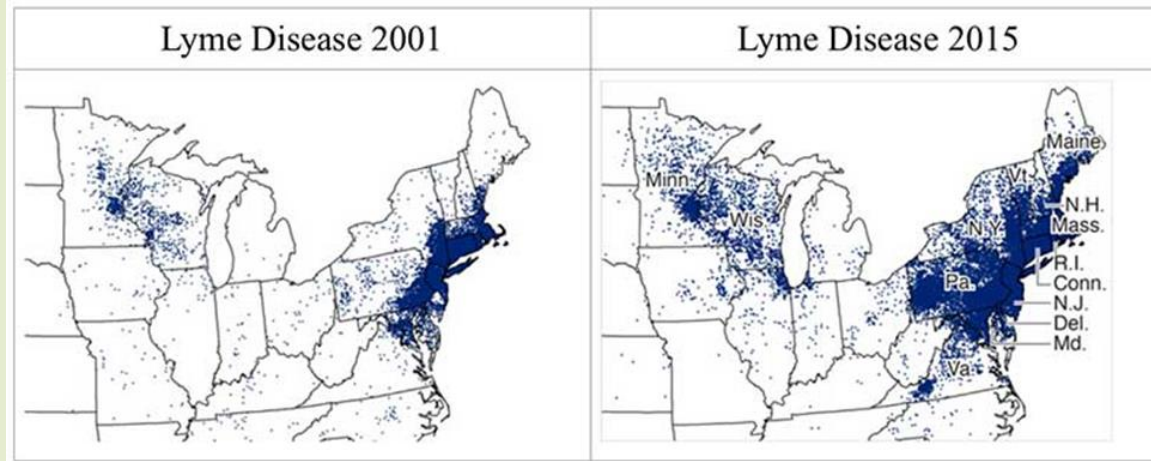


Ecosystems: Climate Impacts



- Disease Vectors and Transmission of Zoonotic Diseases:
 - Higher temperatures
 - Changing weather patterns
- Agriculture:
 - Increased pesticides
 - Staple food shortages
 - Lower nutritional value

Ecosystems: Health Impacts



- Vector-Borne and Zoonotic Diseases (VBZDs)
- Cancer and Neurological Disease
- Malnutrition
- Developmental Issues



Ecosystems: Vulnerable Populations



- ▶ Children
- ▶ Pregnant Women
- ▶ Low-Income Communities



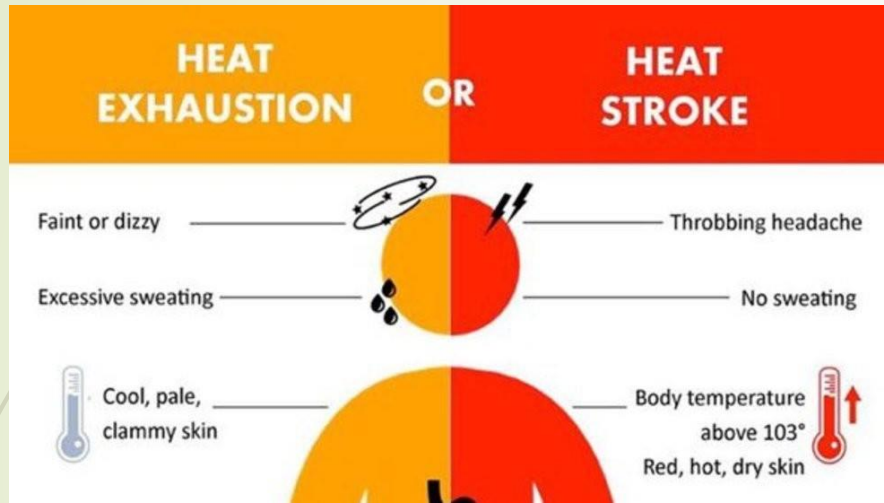
Weather: Climate Impacts



- Extreme Heat
- Extreme Weather Events:
 - Hurricanes
 - Extreme Precipitation
 - Floods
 - Tornadoes
 - Wildfires
 - Drought



Weather: Health Impacts

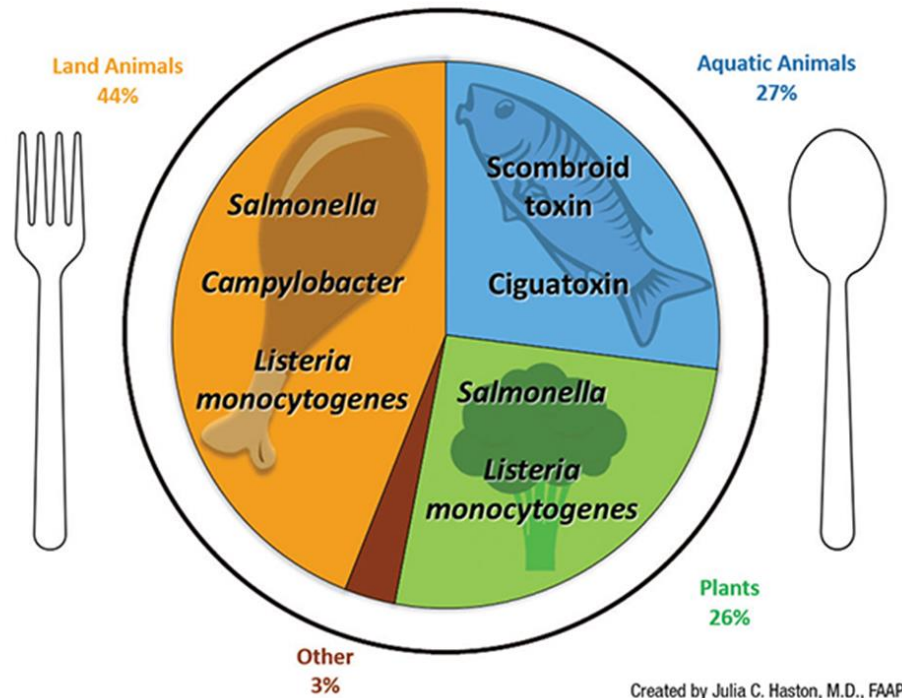


- Heat Exhaustion, Heat Stroke, and Death
- Injury and Death from Extreme Weather Events
- Cardiovascular Disease and Stroke
- Mental Health Issues



Weather: Health Impacts

Figure 1: Most common pathogens associated with foodborne disease outbreaks, by food category



Foods included in the above categories:

Land animals: dairy, chicken, beef, pork, turkey, eggs

Aquatic animals: fish, mollusks

Plants: vegetable row crops, fruits, seeded vegetables, grains and beans, sprouts, root and underground vegetables

- Foodborne Diseases
- Malnutrition
- Cancer



Weather: Vulnerable Populations



- ▶ Children
- ▶ Elderly
- ▶ Individuals with Preexisting Conditions



Weather: Vulnerable Populations



- ▶ Firefighters
- ▶ Agricultural Workers, Construction Workers, and Other Manual Laborers



Weather: Vulnerable Populations



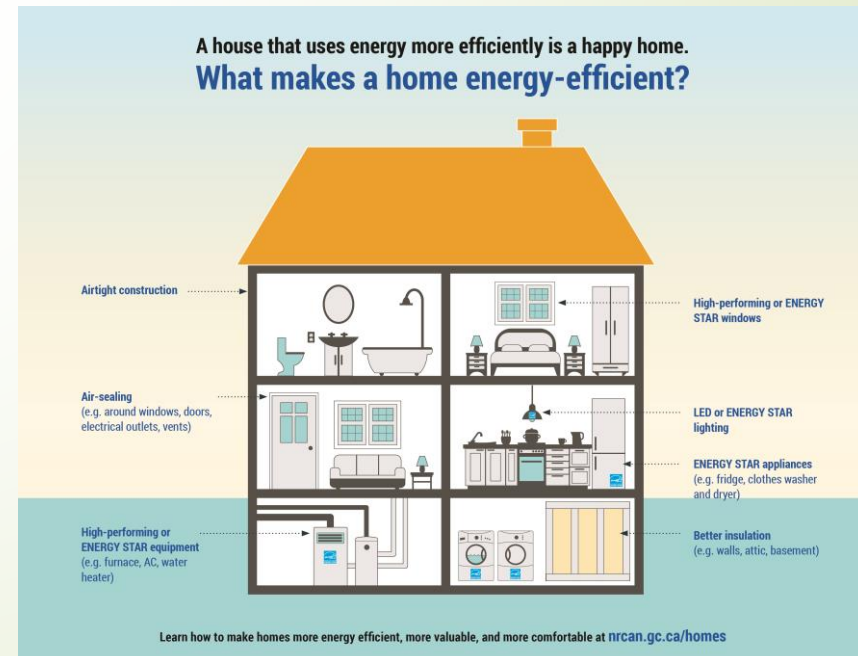
- Urban Populations
- Low-Income Communities



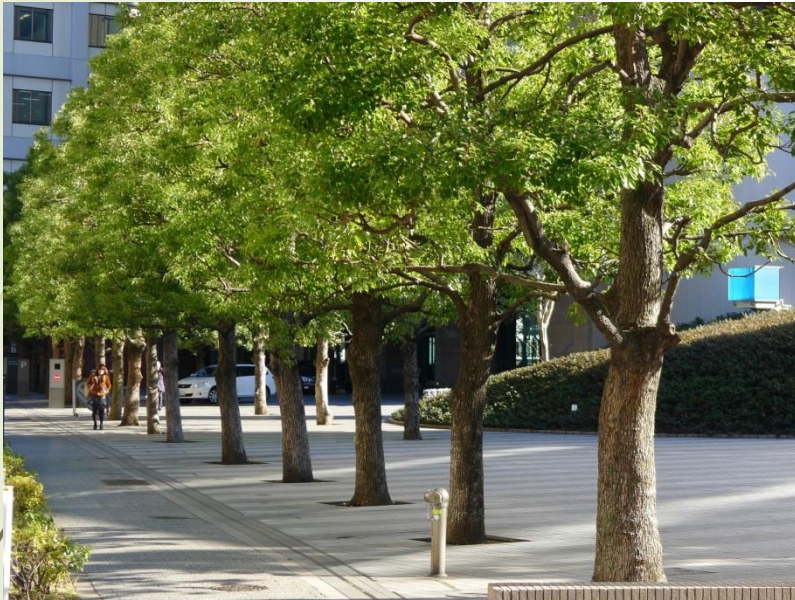
Climate Change Mitigation: Reduce GHG Emissions



- Alternative transportation options
- Alternative fuels and electric vehicles
- Renewable energy
- Energy efficiency



Climate Change Adaptation: Extreme Heat



- ▶ Urban Tree Cover
- ▶ Air Conditioning
- ▶ Robust Early Warning Systems and Public Health Notices
- ▶ Decreased Time Outdoors and Protective Clothing



Climate Change Adaptation: Extreme Weather

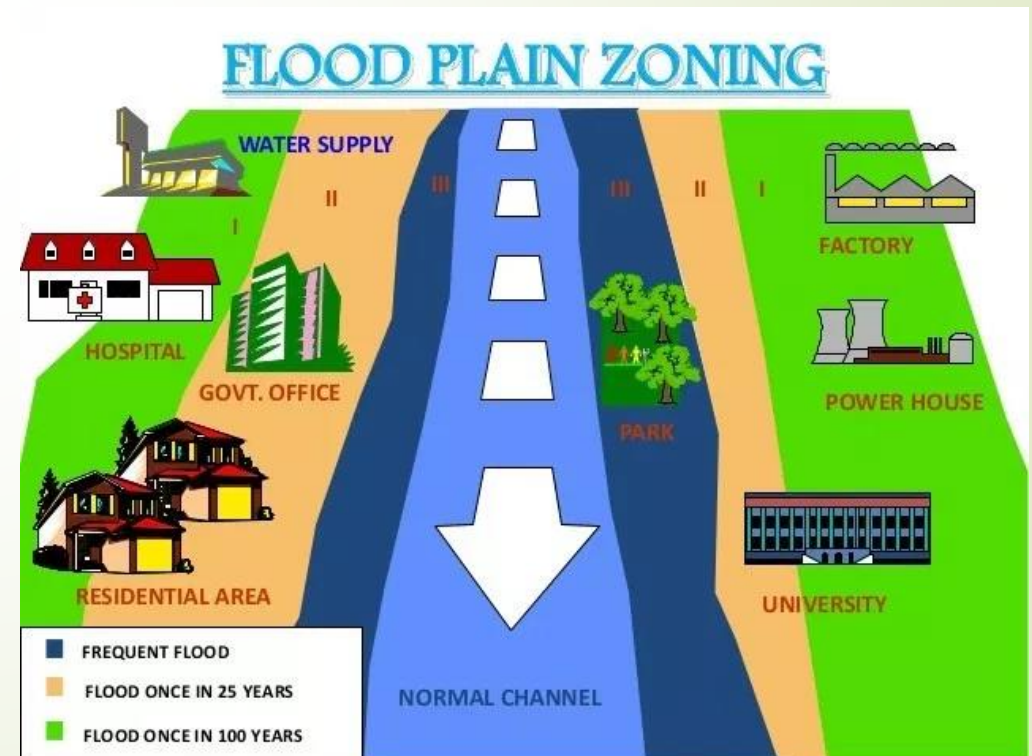
Early Warning Systems

The four components of an early warning system:

1. Monitor the hazard;
2. Quantify the hazard;
3. A disaster plan to address the hazard; [*Hurricane Response Plan, Flood Response Plan, Emergency Plan for the Homeless, Emergency Shelters Policy and Plan*]
4. Effective communications for warning.



- Early Warning Systems
- Disaster Recovery and Evacuation Planning
- Zoning and Planning



Climate Change Adaptation: Extreme Weather



- Natural Storm Barriers
- Artificial Storm Barriers
- Building Improvements



Climate Change Adaptation: Drought and Water Quality



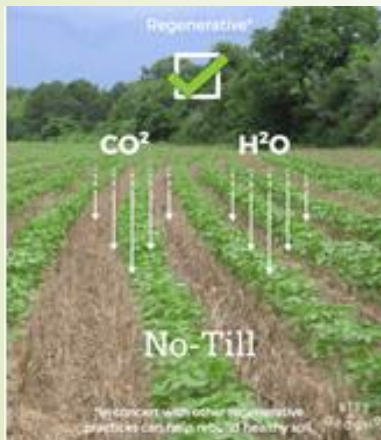
- Capture and Store Rainwater
- Increase Use of Groundwater
- Protect Wetlands and Watersheds
- Upgrade Water Treatment



Climate Change Adaptation: Ecosystems



- Pesticides
- Regenerative Farming
- Reduce Exposure to VBZDs
- Improve VBZD Treatment and Vaccination



What Can Physicians Do?

- ▶ Educate Your Patients



What Can Physicians Do?

- Educate Your Colleagues and Community



What Can Physicians Do?

- ▶ Work with your colleagues and hospital and clinic administrators to assess and address the following:
 - ▶ Health care facility vulnerability to climate change
 - ▶ Greatest health risks to the local community
 - ▶ Health care facility's contribution to climate change



What Can Physicians Do?

- ▶ Support programs in your community and health system that partner with community residents to address climate and health problems



What Can Physicians Do?

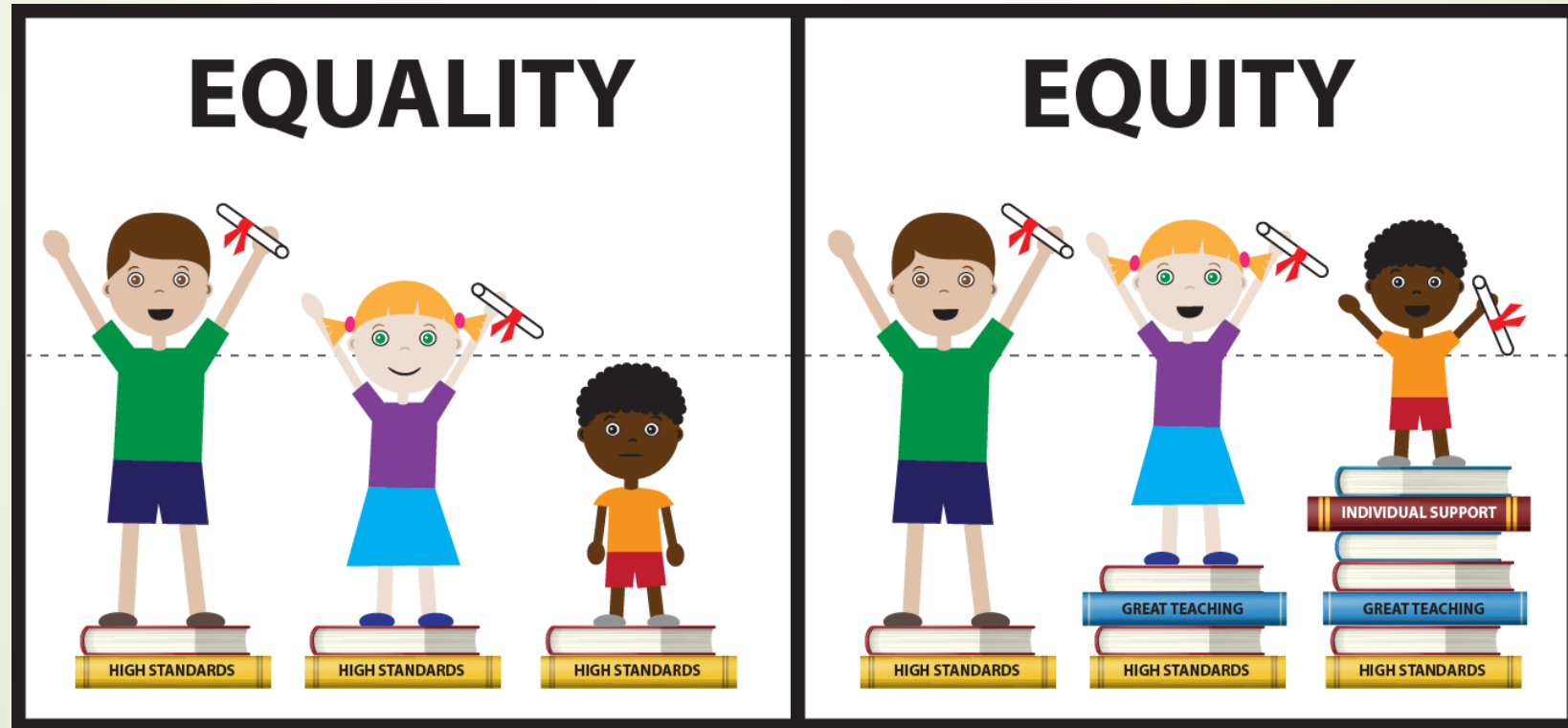
Sustainable Cities



- Promote and advocate for smart climate change mitigation and adaptation strategies in your community:
 - Urban Greening
 - Energy Efficiency
 - Renewable Energy
 - Sustainable Transportation
 - Stricter Regulations on Air and Water Pollutants

What Can Physicians Do?

- Advocate for investments in disadvantaged and highly impacted communities to reduce social and economic vulnerability risks



Questions?

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