Climate Change and Health in Maryland

Scientists agree: global temperatures are rising, causing a suite of impacts including more variable and extreme weather, increased flooding and drought, more common heat waves and fire and the spread of new and existing vector-borne disease. This “new normal” is already here, and the many impacts of environmental change on health are increasingly being recognized.

Climate Change is a Health Issue

“The effects of climate change are being felt today, and future projections represent an unacceptably high and potentially catastrophic risk to human health”.

The Lancet Report on Climate Change and Health

Although the entire globe faces a dramatic change in environmental conditions, the specific impacts of climate change will differ among regions. In Maryland, major health impacts are likely from sea level rise in combination with an increase in severe storms due to a warming ocean and increasingly humid atmosphere. In addition, people in urban areas will suffer from much higher temperatures. Changes that we can expect in Maryland include:

1. **Increases in severe and extreme weather.** Given Maryland’s extensive coastline, storms and flooding are likely to be very problematic for our state. Hurricanes and other coastal storms gain energy from the warming ocean, and increasing temperatures cause air masses to hold more water, further increasing storm severity. For every 1°C increase in air temperature, the frequency of storms as damaging as Hurricane Katrina is expected to increase by 200-700%. Severe storms cause a host of health impacts, many of which have long-lasting effects:

   - **Damaging winds, flying debris and flooding cause injuries.** Damage to hospitals or other infrastructure may interfere with proper treatment of wounds; floodwaters may promote infection.
   - **Floodwaters can distribute dangerous chemicals or pathogens** across wide areas, contaminating drinking and recreational waters, food crops, stored food and fish or shellfish stocks. In Maryland, flooding on the Eastern Shore has been linked with an increased frequency of intestinal illnesses.\(^{(2)}\)
   - **Flood can overwhelm sewage treatment plants and aged sewer systems,** releasing large quantities of sewage into waterways, spreading pathogens, contaminating drinking and recreational water and infiltrating residences. During Hurricane Sandy, 84 million gallons of raw or partially treated sewage was released into Maryland waterways.\(^{(6)}\)
   - **Floodwaters can drive rodents and other animals from cover,** increasing the potential for injury and spreading disease.
   - **After floodwaters retreat, damp conditions in homes and buildings foster the growth of mold** and mildew in walls and furniture, aggravating asthma and other respiratory problems. In addition, furniture and possessions may be contaminated with bacteria and toxins from floodwaters.
   - ** Destruction of residential property can result in large-scale displacement, social disruption and illness,** as documented in New Orleans after Hurricane Katrina, where looting and violence was widespread and inadequate food and sanitation in crowded shelters lead to illness, anxiety and social unrest.

   **We support climate-friendly policies that protect public health**

   Chesapeake PSR supports policies that will increase the use of clean, renewable energy in Maryland, reduce greenhouse gas emissions and promote energy efficiency. We would like to see coal and other dirty energy sources eliminated from the state’s energy mix by 2050. Cleaner energy will not only limit climate change, it will have measurable positive effects on cardiovascular and respiratory health. We also support policy to help communities adapt to problems that are now unavoidable, such as the impacts of sea level rise on flooding. A public health response to climate change is important to ensure that climate policies work to protect the health and well-being of our families and communities.
• The scale of damage and loss may precipitate psychological trauma, impeding individual and community recovery. Effects on young children may be particularly pronounced and long lived. (7)
• Hospitals may flood or lose power, requiring evacuation and preventing chronically ill or injured persons from obtaining required care or medicines.
• Damage to transportation systems or other infrastructure may interfere with access to food and medicine and prolong the period of recovery.

2. Dramatic increases in routine tidal flooding. Coastal regions and communities near the Chesapeake Bay are increasingly subject to flooding as sea level rise causes high tides to wash over low-lying areas. Baltimore, Washington, D.C. and Annapolis are among the nation’s most flood-prone cities and each will experience a dramatic increase in flood incidence by 2030 (see picture to the right). All of the risks from flooding after coastal storms also pertain to tidal flooding.

3. Longer and more severe heat waves. Heat is a serious problem in urban areas, where temperatures can be 5-8°F warmer than in suburban areas. Heat stress is particularly serious for children exercising outdoors, the elderly, persons without access to air conditioning and outside workers. Early stages of heat stress can easily be confused with fatigue. If ignored, heat stress can lead to coma and even death.

4. An increase in the risk of toxic algal blooms due to warming river and coastal waters, could contaminate drinking water and harm seafood.

5. Droughts. The Mid-Atlantic will experience periodic drought as temperatures warm and weather becomes more variable. Drought will impact Maryland’s agriculture and add to the risks of food and water insecurity. Under dry conditions, toxins and pathogens can become concentrated in recreational waters, posing an increased health risk. Moreover, drought and heat together greatly increase the risk of heat stress.

6. Air quality is likely to decline as ozone production increases during hot weather, particulates from fires blow through and the concentrations of aerial pollen increase. (1) This will aggravate Maryland’s already serious asthma problem, and add to the risk of other respiratory disease, heart attack and stroke.

7. The geographical distribution of insect vectors of disease is increasing. Lyme disease is spreading in our region as the ticks that spread it over winter in greater numbers. The insect vectors that spread diseases like Dengue fever, malaria and chikangunya are increasingly found in the U.S., including the Mid-Atlantic.

8. Vulnerable populations are at greatest risk. Although the effects of our changing environment will touch all segments of society, the largest health impacts of climate change are likely to fall on children, the elderly, the chronically ill, people who work outside and those with low incomes and/or limited education. For these populations, climate change can greatly multiply the health risks that are already present.

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