Understanding the Health Impacts of Climate Change in New Jersey
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In December 2017, a New Jersey Climate and Health Profile Report was prepared and released by Rutgers University in consultation with the New Jersey Climate Adaptation Alliance. The report provides a framework to utilize existing data, epidemiological studies, and models of weather patterns to assess the future public health burden from climate risks and lays the foundation for developing best practices for adaptation.

The science is clear: New Jersey's climate is changing. There has been a long-term upward trend of 2.7 °F per century (NCEI 2016). The statewide average temperature for New Jersey in 2012 was the highest in 118 years of records. Nine of the ten warmest calendar years on record have occurred since 1990 and the five warmest years have occurred since 1998, consistent with the long-term upward trend (Broccoli et al. 2013). Unusual summertime warmth has also been a marked impact, with nine of the 15 warmest summers on record occurring since 1999 (Robinson 2016). The summer of 2010 was the warmest on record since statewide record keeping began in 1895; three of four warmest summers on record for New Jersey have occurred since 2010 (Robinson 2016). There has also been an upward trend in annual precipitation and the sea level in New Jersey is rising.

Continued changes in climate have the potential to dramatically affect population health. Direct impacts may include an increased rate of heat-related morbidity and mortality as a result of extreme exposures like heatwaves, while indirect impacts of a heatwave might include changes in the pattern of infectious diseases and fluctuation in water flows and food yields. The most recent research issued by the United States Global Climate Change Research Program (USGCRP 2016), *The Impacts of Climate Change on Human Health in the United States: A Scientific Assessment*, concludes that climate change is a "significant threat" to the health of Americans and the report serves as a critically important assessment and culmination of current science to inform ongoing collaborative efforts in New Jersey (USGCRP 2016).

In terms of hazards, we face air quality changes; extreme heat; precipitation changes and storms; ecosystem changes and threats.

The climate impacts will include: increased ground-level ozone; fine particulate matter changes; pollen and allergen production; increased frequency and intensity of heat waves; flooding; storms; drought; wildfire; changes in disease vector reproduction and migration patterns.

Health impacts will likely include: respiratory illnesses; cardiovascular disease; mortality; heat-related illness and mortality; exacerbation of existing medical conditions; greater stress on electricity systems potentially leading to health outcomes associated with power outages; injuries and fatalities; CO2 poisoning; food and water contamination; stress and mental health impacts; respiratory illnesses; mold exposure; food insecurity; vector borne illnesses; food and water borne illnesses; and harmful algae blooms.

Despite the daunting list of potential climate and health impacts, the most effective and efficient approach to protect the public health of New Jerseyans from changing climate conditions is to **build consideration of changing climate conditions and the anticipated impact and consequences of those conditions into existing public health programs and systems**, rather than creating a new overlay of initiatives on top of existing public health programs and services. Particular attention must be given to ensure that such an approach will be sufficiently protective of the populations and communities that are most vulnerable to changing climate conditions.

The Climate and Health Profile Report identified a five-part framework to strategically focus its efforts moving forward, in recognition that advancing these efforts is dependent on a collaborative approach among public health practitioners, state and local decision makers, the research community, healthcare providers, and the nongovernmental community. Overall, success in advancing this framework will be measured by the extent to which changing climate conditions, and the resulting impacts from those conditions, are fully integrated into planning, decision making and delivery of public health programs, policies and services statewide. The report recommends:

ACT
•Implement specific actions that have already been identified as important to minimize public health risks from changing climate conditions.
•Identify specific communities and populations most vulnerable to changing climate conditions and work in consultation with those populations and communities to design interventions that prioritize their needs.

PLAN
•Integrate climate science and projections for changing climate conditions into existing public health programs and decision-making, including the State Health Improvement Plan and community health planning conducted by counties and health care systems.
•Consider the public health impacts of climate change as part of state and local planning and decision-making such as infrastructure investment, land use planning and community development.

ASSESS
•Through data analysis and community engagement, assess disease burden resulting from changing climate conditions and make the resulting data available to state and local public health practitioners and health systems to inform planning and programs.
•Identify existing public health programs that can be modified to serve as delivery mechanisms for interventions to address health outcomes of changing climate conditions.

SUPPORT
•Develop and assist in the deployment of data, tools and other resources to assist local public health practitioners in implementing interventions to address climate-related health outcomes.
•Provide support to health systems to anticipate how changing climate conditions may affect their own operations and needs of their patients.

BUILD CAPACITY

•Expand the ability of New Jersey's public health practitioners to undertake interventions to address climate-related public health impacts through training, development of best practices, and information sharing.

•Educate lawmakers and other decision-makers about the impacts of changing climate conditions on public health in New Jersey and about the resources needed by public health practitioners to address those impacts.

Much work remains to be done, but the climate and health report makes clear the scope of our challenge, and lays out a list of actions steps the state, and individuals can begin to take. Thankfully, the New Jersey Chapter of the American Academy of Pediatrics has already convened a climate change working group, which will be critically important for implementing interventions that address climate-related health outcomes. To learn more, or get involved with this committee, please contact Bethany Kondavaty at BKondavaty@njaap.org.