Changing climate conditions: An emerging public health threat in Michigan

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Michigan's climate is changing in measurable and impactful ways. Since 1951 the average annual temperature and precipitation have increased by up to 1.3°F and 1.4 inches in some areas of the state, respectively. Those changes coincide with shifting seasonal patterns and increases in extreme heat and precipitation events, which threaten our natural and built environments and in particular, human health. With such changes projected to continue throughout the 21st century, it is critical that public health officials, citizens, and decision makers from local and state government understand the relationships between health and climate change as well as strategies to increase the resilience of their communities.

The Michigan Climate and Health Adaptation Program (MICHAP) in partnership with the Great Lakes Integrated Sciences Assessments Program (GLISA), recently released the Michigan Climate and Health Profile Report. It synthesizes the latest research on climate-related health impacts applied directly to Michigan. The Report identifies these priority health outcomes for our state:

1. **Respiratory Diseases**: Potentially worsening air quality and longer growing seasons for plants producing pollen could increase allergies and exacerbate symptoms including asthma flare-ups.
2. **Heat Illness**: Projected increases in high heat days by mid-century will likely have large direct impacts on morbidity and mortality, especially if occurring simultaneously with other variables such as urban heat island effect.
3. **Water-borne Diseases:** Climate conditions leading to flooding could leave areas vulnerable to sewage/septic failures and runoff, resulting in at an increased risk for waterborne diseases and in certain areas, development of harmful algal blooms.
4. **Vector-borne Diseases:** Projections point to conditions suitable for West Nile Virus and its mosquito vector. Similarly, conditions are suitable for Lyme disease and its tick vector.
5. **Injury and Carbon Monoxide (CO) Poisoning:** Extreme weather events conducive to power outages are projected to increase, especially in winter, leading to increased use of generators and thus increased risk of CO poisoning.

By September 2016 MICHAP will have completed the Building Resilience Against Climate Effects framework for Michigan, which, in addition to this Report includes vulnerability assessments of respiratory, waterborne, and heat related illnesses; disease burden projections of heat related morbidity and mortality; and an updated adaptation plan. Over the next five years, MICHAP will be working with partners across sectors to utilize the knowledge gained about Michigan's vulnerable people and places to implement interventions to reduce health risks associated with climate change.

For additional information and resources, visit the Michigan Climate and Health Adaptation Program or the Great Lakes Integrated Sciences Assessment Program, online.

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