



## Climate Change, Health, and the Role of Nurses

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In May 2016, members of the Alliance of Nurses for a Healthy Environment (ANHE) were invited to the White House to discuss the role of nurses in managing and mitigating the potential health consequences of climate change. The mission of ANHE is to promote the health of people and the environment, educate nurses, and enhance research (ANHE, n.d.). For this historic event, ANHE invited representatives from more than 10 nursing specialty organizations to attend the meeting. I was honored to attend as a member of the Association of Women's Health, Obstetric

and Neonatal Nurses (AWHONN) and to learn more about the link between climate change and adverse health outcomes.

### Climate Change and Health

Climate change affects several social and environmental health determinants. Environmental effects associated with climate change include extended heat waves, flooding, droughts, extreme weather events, larger and hotter forest fires, and the threatening of food crops across the country (Crimmins et al., 2016). There is a wide range of health, safety, and mental health

**Abstract** Climate change is progressing and carries significant public health consequences that nurses will need to be aware of and address in practice and research. The Alliance of Nurses for Healthy Environments encourages nurses and professional nursing organizations to learn about the health effects of climate change and to conduct research and implement adaptive strategies to provide optimal patient care within a changing environment. Pregnant women, newborns, and children are particularly vulnerable to potential health effects related to climate change. <http://dx.doi.org/10.1016/j.nwh.2017.02.003>

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threats that are posed by the effects of climate change (see Figure 1; Crimmins et al., 2016). Health-threatening weather and natural disasters, including hurricanes, flash floods,

### Climate change affects several social and environmental health determinants

droughts, and fires, are predicted to worsen in susceptible areas, and new events are expected to occur in areas previously considered unaffected (Crimmins et al., 2016; O'Neill & Ebi, 2009). The health consequences of these events cost U.S. citizens physically, socially, and economically (Smith & Katz, 2013). On a global scale, the World Health Organization (WHO) estimates an increase of 250,000 deaths and \$2.4 billion of annual spending attributable to climate change between 2030 and 2050 (WHO, 2014).

Some potential health effects of climate change are summarized in Box 1 and Figure 1. Extreme weather and heat are expected to result

in droughts and crop failure, livestock mortality, reduction of safe drinking water, and increased food prices, thereby increasing the risk of malnutrition and gastrointestinal disease (Rylander, Odland, & Sandanger, 2013). Increased heat is expected to increase the transmission of vector-borne diseases such as dengue fever, tick-borne encephalitis, schistosomiasis, malaria, and Zika virus (Rylander et al., 2013). Higher temperatures are particularly an issue for women who are at increased risk of consequences associated with increased core body temperature, such as preterm birth and poor birth outcomes (Rylander et al., 2013).

Much of the extant literature has focused on the health consequences of extreme heat, air pollution, and infectious diseases (McMichael, Woodruff, & Hales, 2006), but there has been less research on the social effects, mental health effects, and effects of lack of food resources. These factors put those in low-income and marginalized regions at increased risk of negative health consequences associated with climate change (Crimmins et al., 2016; WHO, 2016).

Box 1.

#### Potential Effects and Health Impacts of Climate Change

Climate Change Effect	Potential Health Impact	Possible Women's and Neonatal Health Consequences
Extreme heat	Heat-related death and illness	Preterm birth, cataract and eye conditions, low birth weight, neonatal mortality
Poor air quality	Cardiovascular and respiratory disease	Preterm birth
Flooding and water-related infections	Drowning/injury, gastrointestinal illness, wound/blood infection	Abruption, preterm birth, gastrointestinal infections
Vector-borne infection	Lyme disease, malaria, dengue fever, West Nile virus, Zika virus, etc.	Microcephaly, preterm birth, preeclampsia, low birth weight, childhood anemia
Foodborne infection	Gastrointestinal illness	Preterm birth, gastrointestinal infections
Drought and diminished crop yields	Malnutrition, poverty	Preterm birth, malnourishment
Mental health/well-being	Distress, grief, behavioral and social health consequences	Postpartum depression

Sources: Haines and Patz (2004); Patz and Koyats (2002); Poursafa, Keikha, and Kelishadi (2015); and Rylander, Odland, and Sandanger (2013).

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