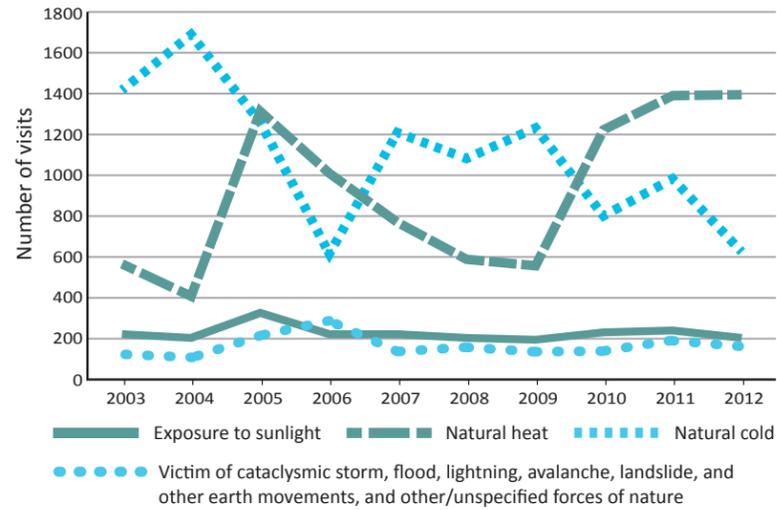


## DIRECT IMPACTS BY THE NUMBERS

Number of emergency department visits due to specific extreme weather-related causes, Ontario, 2003-2012<sup>1</sup>



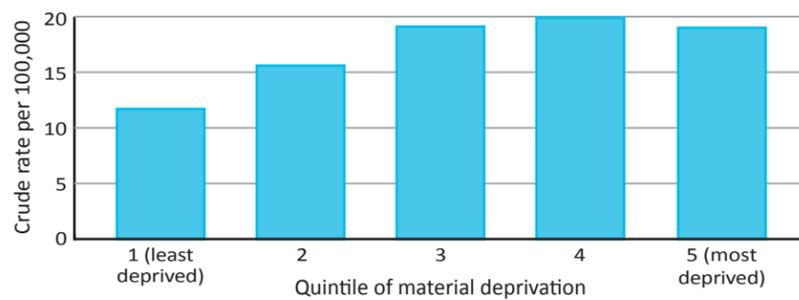
Between 2003 and 2009, there were 203 deaths due to extreme weather recorded in Ontario.<sup>2</sup>

## WHO IS AT INCREASED RISK?

Everyone is affected by the impact of extreme weather events, both directly and indirectly.<sup>3,4</sup> However, some populations have been identified as being at greater risk:<sup>3-5</sup>

- Seniors
- Socially disadvantaged people
- People with pre-existing illnesses
- Infants and children
- Emergency response workers
- People living in northern communities

Rates of extreme weather-related emergency department visits stratified by material deprivation,\* Ontario, 2006<sup>1</sup>



\*Measured using the Ontario Marginalization Index.

# EXTREME WEATHER

## THE FALLOUT AFTER THE STORM

Extreme weather – weather events that are exceptional in terms of frequency or impact – can have outcomes that impact health through direct and indirect effects, including social and economic disruptions.<sup>5</sup> A changing climate means more extreme weather events, increasing risk to the health of Ontarians.



While direct effects of extreme weather events are a concern to public health, the indirect effects place an even greater burden on Ontarians.<sup>4,5</sup>

Health outcomes from extreme weather events may include:<sup>3,5-7</sup>

- Changing patterns of vector-borne diseases
- Extreme-temperature-related illnesses
- Illness from food and water contamination
- Impacts of critical infrastructure failure
- Impacts of disruption of health services
- Injuries
- Mental illness
- Respiratory and cardiovascular disorders

## WHEN DISASTER STRIKES

**23** Number of disaster-level extreme weather events\* in Ontario from 2003-2012<sup>8</sup>

- 9 Floods
- 4 Storms and severe thunderstorms
- 4 Tornadoes
- 4 Wildfires
- 2 Winter storms

**>770,000** Estimated number of people affected by utility disruptions from disaster-level extreme weather events in Ontario from 2003-2012<sup>8</sup>

**>10,000** Estimated number of people evacuated due to disaster-level extreme weather events in Ontario from 2003-2012<sup>8</sup>

\*Meets one or more of the following: 10 or more people were killed; 100 or more people were affected/injured/infected/evacuated or homeless; an appeal for national/international assistance was made; had historical significance; caused significant damage/interruption of normal processes such that the community affected could not recover on its own.

Evidence suggests Ontario's climate is changing, which may lead to:<sup>4,5,9,10</sup>

1. Increased average temperatures
2. More drought and floods
3. Increased severity, spatial extent and number of extreme weather events

Extreme weather is projected to get worse. Public health has a role in mitigating impacts, and should work with the health sector and others to be aware and prepared.

1. Data Source: National Ambulatory Care Reporting System (NACRS), Ontario Ministry of Health and Long-Term Care, IntelliHEALTH Ontario, Date Extracted: 2013 Nov 15. 2. Data source: Vital statistics, Ontario Ministry of Health and Long-Term Care, IntelliHEALTH Ontario, Date Extracted: 2013 Nov 15. 3. World Health Organization; World Meteorological Organization. Atlas of health and climate. Geneva, Switzerland: World Health Organization; 2012. Available from: [http://www.who.int/iris/bitstream/10665/76224/5/9789241564526\\_eng.pdf?ua=1](http://www.who.int/iris/bitstream/10665/76224/5/9789241564526_eng.pdf?ua=1) 4. Ontario. Ministry of the Environment. Climate ready: Ontario's adaptation strategy and action plan, 2011-2014. Toronto, ON: Queen's Printer for Ontario; 2011. Available from: [http://www.ene.gov.on.ca/stdprodconsume/groups/lr/@ene/@resources/documents/resource/stdprod\\_085423.pdf](http://www.ene.gov.on.ca/stdprodconsume/groups/lr/@ene/@resources/documents/resource/stdprod_085423.pdf) 5. Health Canada. Human health in a changing climate: A Canadian assessment of vulnerabilities and adaptive capacity. Ottawa, ON: Her Majesty the Queen in Right of Canada; 2008. 6. Astrom DO, Forsberg B, Rocklöv J. Heat wave impact on morbidity and mortality in the elderly population: A review of recent studies. Maturitas. 2011;69(2):99-105. 7. Chang SE, McDaniels TL, Mikawoz J, Peterson K. Infrastructure failure interdependencies in extreme events: Power outage consequences in the 1998 ice storm. Nat Hazards. 2007;41(2):337-358. 8. Public Safety Canada. Canadian disasters database [Internet]. Ottawa, ON: Her Majesty the Queen in Right of Canada; 2013 Sept 13. Available from: <http://www.publicsafety.gc.ca/cnt/rsrcc/cndn-dsstr-dtbs/index-eng.aspx> 9. Health Canada. Adapting to extreme heat events: Guidelines for assessing health vulnerability. Ottawa, ON: 2011 Available from: [http://www.hc-sc.gc.ca/ewh-semt/all\\_formats/necss-sesc/pdf/pubs/climat/adapt/adapt-eng.pdf](http://www.hc-sc.gc.ca/ewh-semt/all_formats/necss-sesc/pdf/pubs/climat/adapt/adapt-eng.pdf) 10. Intergovernmental panel on climate change. Managing the risks of extreme events and disasters to advance climate change adaptation; 2012. Available from: <http://ipcc-wg2.gov/SREX>