The Impact of Weather on Human Health & the Influence of Weather Information on Health Behaviours

Toronto Public Health: A Local Perspective

Presented by: Carol Mee
Manager, Healthy Public Policy
Toronto Public Health

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Toronto Public Health’s Mandate

- Toronto Public Health (TPH) strives to reduce health inequalities and improve the health of the whole population.
- TPH is part of the municipal government.
- The Toronto Board of Health
  - Determines and sets public health policy.
  - Advises City Council on a broad range of health issues.
Weather is important in Toronto
Environment Canada:

- A recent study for Toronto suggests that by 2050:
  - Increase in extreme daily max temperature from 37 °C to 44 °C
  - Five-fold increase in the number of 3-day heat events

Data Source: Canadian Climate Change Scenarios Network (Environment Canada)
• On average, there are 120 heat related deaths in Toronto each year

• Heat-related mortality in Toronto could double by 2050 and triple by 2080 (TPH and EC)

Source: NRTEE
Paying the Price – Human Health
Changes in Precipitation

Pearson Airport: Extreme DAILY Rainfall

- 2000-2009
- 2040-2049

Month:
- Jan
- Feb
- Mar
- Apr
- May
- Jun
- Jul
- Aug
- Sep
- Oct
- Nov
- Dec

Amount in mm:
- 0
- 20
- 40
- 60
- 80
- 100
- 120
- 140
- 160
- 180
Ice Storm Impacts

- Widespread impacts – not just the “vulnerable” population
- Spoiled Food – lines ups for food vouchers
- Warming Reception Centres - warmth and food but majority stayed at home or with friends/relatives
- Deaths, illness related to carbon monoxide poisoning (gas powered generators, barbeques inside homes)
- Stress – mental health impacts – especially for those without hydro for extended period
- Costs of missing work, repairs to homes, insurance, etc
How Weather information is used to Influence Decision Makers

- 2011 - Board of Health report "Protecting Vulnerable People from Health Impacts of Extreme Heat" recommended heat specific emergency plans
- February 2013 - "Toronto's Future Climate: Study Outcomes", predicts significant increases in extreme weather events in Toronto by 2049 – city working group to identify key adaptations relating to core services
- July 2013 – Record rainfall and major flooding
- December 13 2013 "Exploring Health and Social Impacts of Climate Change in Toronto“ recommends a climate and health vulnerability assessment for the City of Toronto.
- December 21/22 2013 – Ice Storm hits knocking out power across the city
July 2014 reports to Council:
- Strategies to assist in preventing deaths during extreme heat emergencies
- Ice Storm Post Mortem report recommends improving the co-ordination of the City's response for future emergency events
- Resilient City report recommends strategies to prepare for and prevent extreme weather-related impacts – results in funding for city divisions for adaptation efforts including outreach to the community
What information would improve decision making?

- Historical trends and future predictions help frame the issue and data can be used to “tell the story” and develop policies.
- Timely real time and forecast information to guide emergency planning decisions.
- Timely and accessible weather information can help the public make decisions about daily activities.
  - Data needs to be easy to understand and provide concrete messages.
  - Multiple communication strategies – apps, social media, traditional media, e-alerts.
App Goal: to increase awareness of weather impacts on health and promote behaviour change

- Aim to launch at 2015 PanAm/ParapanAm Games with focus on heat and Air Quality Health Index (AQHI)
- Designed for year-round delivery of tips and alerts about weather and health

*Note: text and images are placeholders only*
Heat Alert and AQHI Info Pushed to Users

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Daily Tips Based on Weather and Activity

What are you doing right now?

- Going to work/school
- Exercising
- Spending time outdoors
- Spending time indoors
- Caring for kids
- Going to PanAm event

Choose from the activities above to see heat and health tips relevant to what you are doing.

I am currently

- Spending time outdoors

- Check the AQHI
- Drink lots of water
- Watch for signs of heat illness
- Dress cool
- Choose a cooler time and place

I am currently

- Exercising

Watch for signs of heat illness

Move to a cool place and drink water if you feel dizzy, nauseous, have a headache, are extremely thirsty or have rapid breathing or heartbeat.

Call 911 if you or someone you're with has a high body temperature, loses consciousness or seems confused - these are the signs of a heat stroke.

*Note: text and images are placeholders only*
Show Users How to Protect Themselves

Heat Examples:
- Cooling centres
- Parks
- Swimming pools, wading pools, etc.
- A/C places – libraries, recreation centres
- Drinking water fountains
- Public washrooms

- Potential for “all hazard” information including cold, ice storms, power outages, flooding, etc

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Concluding thoughts

- Weather information is invaluable to policy makers
- Combining weather and health impacts encourage health protective actions
- It often takes an extreme weather event to drive decision makers and the public to take action
Carol Mee – cmee@toronto.ca
416-338-8098

Toronto Public Health web
www.toronto.ca/health