

# Cold weather associated with higher risk of severe heart attack

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**Heart Attack**

Myocardial Infarction or Heart Attack. Credit: Blausen Medical Communications/Wikipedia/CC-A 3.0

Cold weather is associated with a higher risk of severe heart attack, according to research presented at ESC Congress today by Dr Shuangbo Liu, adult cardiology resident at the University of Manitoba in

Winnipeg, Canada. The six year study found that each 10°C drop in temperature was associated with a 7% increased risk of ST-elevation myocardial infarction (STEMI), the most severe form of heart attack.

"We studied the effects of temperature on the risk of heart attacks in Winnipeg, Canada, one of the coldest large cities in the world," said Dr Liu. "We demonstrated that there is a clear relationship between daily temperature and the risk of STEMI. This risk can be predicted up to two days before the actual heart attack. Increased public awareness and reallocation of resources may help us to respond to this predictable seasonal risk of heart attacks in the future."

Winnipeg, a city of approximately 700 000 inhabitants in Manitoba, is in the geographic centre of Canada. It is known for its very cold winters and hot and dry summers. This allows the perfect opportunity to study the effect of temperature and the environment on cardiac events.

ST-elevation [myocardial infarctions](#) are the most severe types of heart attacks. They are usually due to an acute plaque rupture within the coronary arteries and the chance of dying from this type of heart attack is the highest.

The researchers from the University of Manitoba, led by supervisor Dr James Tam, performed a retrospective review of all ST-elevation myocardial infarctions in Winnipeg over the last six years. Data was collected from Environment Canada on daily high, low and average temperature of the day, previous day and two days before each heart attack. Information was also obtained on daily snowfall. Wind direction and humidity were not assessed. Some 32% of the days (n=684) had a daily high temperature under 0oC, 38% were between 0-20oC and 31% (n=663) were above 20oC.

During the six year period there were 1 817 ST-elevation myocardial

infarctions. The daily high was the strongest predictor of STEMI. On days with a daily high less than 0oC, STEMI event rates were 0.94/day, compared to 0.78/day when the daily high was greater than 0oC. Despite yearly variation, the average STEMI rate over the study period had a statistically significant linear trend across temperature (p

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