Dr. Neil White

"FROST 2.0: Factors Predicting Orthopaedic Trauma Volumes"

We recently published the largest Canadian study (FROST 1.0) to correlate weather and accident rates using eleven years of daily patient and weather data from Calgary, Alberta. The study showed predictable seasonal and weather-dependent increases in accident rates, after-hours surgery, patient wait times, staff overtime and surgical complications. This is very expensive for the health care system. The long-term aims of the FROST study are 1) to make recommendations guiding healthcare resource allocation, and 2) to provide public health advisories for the risk of injury during dangerous weather conditions.

FROST 2.0 will test the correlation of weather and orthopaedic trauma in a different climate using data from the Edmonton region (2008 – 2018). Patient and weather data from Edmonton and Calgary will then be analyzed using descriptive statistics and regression models to evaluate the types of injuries presenting during certain times of the year under specific weather conditions across Alberta.

If the findings from FROST can be replicated using Edmonton data, we would aim to change how resources are allocated to all adult hospitals in Alberta, beginning with a pilot trial for resource allocation at our local site, the South Health Campus. We suggest increased time for trauma surgery during busy months and reduced time during quieter months. To evaluate whether our model works, we will measure changes in operating room use, amount of after-hours surgery, and patient wait times. Our second aim is to create a system to warn the public about dangerous weather conditions: the Alberta Slip and Fall Index. By refining our initial model, we can construct an index to be incorporated into daily weather broadcasts and news streams to increase population awareness of risks associated with weather conditions.