

# Northern Canada: Investigating cancer rates in northwestern Manitoba

Statistics compiled by the health authorities of Parkland and Norman in northwestern Manitoba show that the neighboring regions have cancer incidence rates that are quite similar and significantly higher than the provincial average.

Kirsten Larson and Alex Hart, 17-year-old Grade 11 students at Swan Valley Regional Secondary School located in the Parkland region, began to wonder if this statistical correlation could be linked to a common cause – atmospheric pollution by heavy metals or other known carcinogens.

Their research project, conducting heavy metals tests on samples of snow taken from the northern Manitoba mining town of Flin Flon (Norman) and Swan Valley (Parkland) won them the first prize in the Canada North region of this year's Sanofi Aventis BioTalent Challenge.

"We had heard that there was a serious pollution problem in Flin Flon, particularly arsenic pollution," said Kirsten. "Our tests were designed to confirm that and to find out whether the pollution had somehow migrated south to Parkland."

The two students made the four and a half-hour drive to Flin Flon to collect their snow samples, took similar samples in Swan Valley and sent them to a laboratory in Winnipeg for analysis. The results showed that the levels of arsenic, cadmium and lead in the Norman (Flin Flon) snow were 10 to 100 times higher than the safe drinking level. In the Parkland (Swan Valley) snow, on the other hand, levels were at or below the acceptable health standard.

Although the snow analysis effectively disproved the original hypothesis of a correlation between the causes of the two regions' elevated cancer rates, the young researchers see it as a positive result. "Flin Flon's cancer rate may be caused by elevated levels of arsenic and other metals in surface water, but we now know that is not the case in Swan Valley," said Kirsten.

This opens up another area for inquiry. "Alex and I have been talking about investigating other factors in Parkland for next year's project. This area has many farmers who rely on ground water for their drinking water and arsenic contamination of ground water is a serious problem in other countries."