

Exposure to Environmental Contaminants in Nunavik: Metals

The Inuit of Nunavik are exposed to metals and persistent organic pollutants (POPs) that are carried from southern to northern latitudes by oceanic and atmospheric transport and biomagnified in Arctic food webs. As the Inuit traditional diet comprises large amounts of tissues from marine mammals, fish and terrestrial wild game, the Inuit are more exposed to these contaminants than populations living in southern regions. Mercury and lead mainly affect the nervous system and can cause cognitive, behavioural and motor impairment in children and adults. The major health risk associated with cadmium is renal toxicity, whereas chronic exposure can also cause anemia, bone loss and cardiovascular disease. The objectives of this study, conducted within the framework of the Nunavik Inuit Health Survey 2004, were: 1) to investigate changes in environmental contaminant exposure among the Inuit of Nunavik by updating exposure assessment, and 2) to begin monitoring emerging environmental contaminants.

Between 1992 and 2004, blood mercury levels have declined by 30%. This decreasing trend may be explained by the promotion to consume less contaminated traditional food or the shift toward a westernized diet. The cause of the observed decline is not clearly defined and would be clarified by the results of traditional food consumption measurements that were collected over the course of the Nunavik Inuit Health Survey 2004. Lead concentration showed a twofold decrease over the same period, which is attributable to the ban on lead shots used for hunting and the public awareness campaign on the health effects of lead. Similarly, cadmium exposure has decreased by 23%, except among young adults aged 18-24.

These encouraging results clearly demonstrate that implementation of public health campaigns such as the ban of lead cartridges may reduce Inuit exposure to metals and consequently, possible health effects. However, a large proportion of individuals and women of reproductive age have blood concentrations above the World Health Organisation's recommended tolerable daily intake, especially for mercury and cadmium. Therefore, more active and coordinated public health interventions against tobacco use should be encouraged in order to decrease cadmium exposure and to prevent health risks including lung cancer, cardiovascular disease and childhood asthma. In terms of mercury, promoting the decreased consumption of contaminated marine species should be maintained, particularly for pregnant and lactating women and women of childbearing age.

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STATISTICAL ANALYSES

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